

‘We Now Make Our Own Money and Decisions’: Gender Norms and Food Insecurity in
the Wakiso District of Uganda

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by

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DEDICATION

This project is dedicated to the women of Sentema and Katiti who participated in the study. I will never forget your openness, generosity, patience and exceptional dance moves.

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LIST OF ABBREVIATIONS

Bega Kwa Bega.....	BKB
Female Headed Households.....	FHHs
Food and Agriculture Organization of the United Nations	FAO
Household Dietary Diversity Score	HDDS
Household Food Insecurity Access Scale	HFIAS
Male Headed Households	MHHs
National Agricultural Advisory Services Organization.....	NAADS
Non-Governmental Organization.....	NGO
People Living with HIV/AIDS	PLWHA
Uganda Bureau of Statistics	UBOS
Ugandan Shillings	UGX
United States Agency for International Development.....	USAID
World Health Organization.....	WHO

ABSTRACT

‘WE NOW MAKE OUR OWN MONEY AND DECISIONS’: GENDER NORMS AND FOOD INSECURITY IN THE WAKISO DISTRICT OF UGANDA

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Background: Food insecurity continues to be a challenge for many Ugandan women living in rural areas. Literature from other East African countries suggest that household inequalities may contribute to nutrient deficiencies. The author seeks to understand how gender norms influence food procurement and consumption in Ugandan households.

Methods: In this mixed-methods study, 64 participants from two villages in the Wakiso District were interviewed about demographics of their households, and asked questions from FANTA’s Household Food Insecurity Access Scales (HFIAS) tool. Participants were also asked to detail foods consumed within last 24 hours; this data was used to create Household Dietary Diversity Scores (HDDS). Chi-Square, bivariate correlations test, ANOVA and independent T-tests were employed to determine if statistical differences existed between the gender of the head of the household and HFIAS or HDDS. Discussion groups were conducted to explore the intersection between foodways and gender roles. Qualitative data was evaluated through thematic analysis.

Results: There was no statistically significant evidence to suggest that the gender of the head of the household influenced HFIAS or HDDS. The mean HFIAS was 9.3 out of 27. The mean HDDS was 6.4 out of 14. The qualitative data paints a picture of women who are economically empowered but struggling with an overburden of household responsibilities. Additionally, participants reported limited access to marketplaces to sell crops directly to consumers, leading to the necessity of selling to agricultural middlemen.

Conclusion: Technical investments in low-cost storage technologies are needed to ensure more negotiation power with middlemen and improve household food security status.

CHAPTER ONE

Away from the dust and noise of Kampala, with the ample sunshine, lush greenery and red dirt, Sentema and Katiti villages appear at first glance to be the antithesis of a food desert. In a country where more than two thirds of the population farms and where produce markets line both sides of Entebbe Road, it seems perverse that many rural people should struggle to find enough food for their families or suffer from the ill effects of malnutrition. While foreign food aid and development efforts have made a dent in the region, food insecurity continues to be a persistent concern for Ugandans living in poverty.

This project utilizes the World Food Summit's definition of *food security*: "when all people, at all times, have physical and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life" (FAO 1996). Food insecurity, therefore, exists when people lack such access or when a person must resort to socially unacceptable ways of procuring food. Examples of socially undesirable methods of acquiring food may include prostitution, rummaging, stealing, and eating unsafe or rotten foods.

When people live in a food insecure environment they become at risk for macronutrient and micronutrient deficiencies. According to the World Health Organization (WHO), 34.6% of Ugandans were unable to procure and consume enough

macronutrients in foods to meet the minimum energy level in 2006. In a 2010 study of HIV-positive people in Uganda, 95% reported being unable to procure a food item they wanted due to a lack of resources (Weiser et.al). Perhaps even more revealingly, 62% of the study participants had reported skipping meals due to lack of food, and 22% had skipped eating all day (Weiser et al. 2010). In 2006, 12% of women had a BMI lower than 18.5, putting them in the underweight category (Uganda Nutrition Action Plan, 2010). This evidence suggests that many poor Ugandans may have difficulty regularly procuring sustenance, making it difficult to meet even the basic energy requirements to sustain life.

Even where an individual's consumption of macronutrients is adequate, their diet may not meet nutritional requirements due to the homogeneity of foods consumed. Those more fortunate may still suffer from various micronutrient deficits and related health outcomes due to a lack of dietary diversity. Micronutrient deficiencies are referred to as "the hidden hunger," as they can occur in instances where diets are calorically rich but lacking in essential vitamins and minerals. According to a recent study by International Food Policy Research Institute (IFPRI) of variety in the diets of Sub-Saharan Africa, households in Uganda tied Malawi and Rwanda for the second-lowest diverse diets, after Mozambique (Hillocks 2011).

There is strong evidence in the global health literature that suggest that household inequalities may contribute to females' risk of developing nutritional deficiencies. For example, many Ugandan women suffer from iron, vitamin A and zinc deficiencies (Hillocks 2011). According to a 2006 WHO study in Uganda, 64.4% of pregnant women

suffered from iron deficiency anemia (WHO 2006). An additional 8% of women also suffered from clinical vitamin A deficiency (WHO 2006). The prevalence of zinc deficiency is 20% to 30% in adults, which can result in poor birth outcomes and reduced immune resistance (Uganda Nutrition Action Plan 2010).

Furthermore, Ugandan females appear to be disproportionately affected by food scarcity (Hillocks 2011). As authors Tsai and Bangsberg put it, “due to gender inequalities in intra-household resource allocation, women and female children are frequently the first household members to bear the brunt of adverse agricultural and income shocks” (2011 pg 1722). For instance, in a study of people living with HIV/AIDS (PLWHA) in Uganda, severe food insecurity affected 38% of the population; significantly affecting a greater share of women (41.7%) than men (28.8%) (Tsai & Bangsberg 2011).

Malnutrition is particularly concerning in females of reproductive age as it can contribute to unfavorable gestational results and is estimated to be the underlying cause of 25% of maternal deaths (Uganda Nutrition Action Plan 2011). The mean fertility rate for all Ugandan women is 6.2 children, and for rural women this number jumps to 6.8 children (UBOS 2011). Frequent pregnancies may further exacerbate nutritional deficiencies both for the mother and her offspring (Save the Children 2012). Furthermore, malnutrition can increase an individual’s susceptibility to disease or infection which is particularly pertinent in an area with high malaria, tuberculosis and HIV/AIDS prevalence (WHO 2015).

Nutritional insufficiencies can have a multi-generational affect, whereby the descendants of malnourished individuals can grow up stunted both physically and mentally. Malnourished people are more likely to be ill, leading to a significant reduction in productivity and economic growth. The *Uganda Nutrition Action Plan 2011-2016* estimated that malnutrition cost the country roughly \$310 million US dollars in productivity, contributing to loss of 4.1% gross domestic product (GDP) per year. On a micro level, a significant loss of productivity caused by malnutrition may be devastating for a household, plunging a family into an inescapable cycle of poverty.

Research Questions and Study Purpose

In its 2012 *Gender and Development* report, the World Bank cautions that recognizing gender inequalities and incorporating countermeasures is critical to the success of international agricultural development efforts. Evidence in the literature (which will be discussed in depth in Chapter 2) suggests that gender norms may play an enormous role on food security and dietary diversity within the Ugandan household, but gathering clues on when, how and why will be the topic of this investigation. The current study seeks to assess the role of gender on food security and dietary diversity and further examine ways in which gender inequalities influence the participants' ability to procure and consume nutritious foods.

While a principally qualitative project in both scope and design, the author has also included using quantitative data to enrich the analysis. In addition to the primary research questions, the author also seeks to answer related research questions which may

help paint a clearer picture of the food system landscape as well as to identify potential consumption patterns and barriers. These secondary research questions have been grouped by category and reported below:

Household Food Security Status and Dietary Diversity Scores:

1. Does the gender of the head of the household statistically significantly ($< .05$) influence food security and dietary diversity among participants as evidenced by the Household Food Insecurity Access Scales (HFIAS) and the Household Dietary Diversity Scores (HDDS)?
2. Is there evidence to suggest that any of the demographic factors (religion, village, tribe, marital status, number of children, education level or whether or not a participant earns their own income) contribute to reported diet for study participants, as evidenced by the HDDS and HFIAS results?

Nutrition Knowledge:

3. What categories of foods do participants consider the most nutritious for females to eat and do these perceived nutrition needs change when various stages of the lifecycle (e.g. pregnancy, lactation) are considered?

Household Gender Roles:

4. How does gender influence labor, ownership and decision-making within the household?

Agriculture:

5. How do household gender roles affect how food is grown, stored and marketed?

Cultural Norms:

6. Are there food taboos or cultural norms reported that may contribute to food insecurity or dietary homogeneity?

Body Image:

7. Does a cultural perception of body image ideal influence the way that participants make food choices?

Research Goals

Through this research, the author endeavors to gain a more complete understanding of how the gender norms influence food procurement and consumption patterns for women living in rural areas of the Wakiso District. The aim of this inquiry is to identify and analyze the gender-related factors associated with high food insecurity and a lack of dietary diversity in the study population. The goal is to highlight potential barriers that this population faces in order to recommend opportunities for further research or future technical projects. Ultimately, by engaging in this investigation and discerning some of the ways gender may influence food consumption and accessibility, the author strives to inform culturally competent nutrition programs in the region in the future.

CHAPTER TWO: LITERATURE REVIEW

This study concentrates on the complex interplay between household gender roles, dietary diversity and food security status among women of reproductive age in the Wakiso District of central Uganda. In order to design a research project that can capture how gender norms may influence diet and, by extension, food consumption in the study population, a thorough and interdisciplinary review of the existing literature is required. Therefore, the author has extensively pulled from a variety of public health, nutrition, scientific, economic and social science journals, books, reports and conference papers in order to build this important foundation. Keywords and key phrases used to find literature in the search included “Uganda”, “women”, “agriculture”, “food security”, “nutrition”, “dietary diversity”, “gender” and “head of household,” among others.

Uganda is small and diverse country made up of roughly 17 different tribes (Consulate of the Republic of Uganda 2011). In addition to literature published in the country, the author researched related literature from studies in other Sub-Saharan African countries such as Sudan, Kenya, Ethiopia, Rwanda, Malawi, the Democratic Republic of Congo, South Africa and Tanzania. While many of these countries have radically different cultures and climates that may not be directly applicable to the experience of a person living in central Uganda, the methodology and results of these studies can still provide a valuable framework.

In reviewing the literature, the author discovered three reoccurring and related key themes:

1. Female Ugandans' diets tend to be largely homogenous, which may be due to taboos and gender disparities in household food distribution;
2. Due to sex inequalities women may bear a disproportionate brunt of household labor and food-related activities (e.g. agriculture, food preservation), while being less empowered to earn income, own land and make decisions;
3. Evidence suggests that the sex at the head of the household (male headed households or female headed households) may influence women and children's dietary patterns.

Detailed below is an examination of these core themes, followed by a discussion of potential literature gaps and implications.

Key Theme 1: Gender Disparities in Dietary Diversity

The diets for many rural Ugandan women appear to be nutritionally inadequate. Even in cases where carbohydrates provide enough energy to survive, diets may still lack in protein, lipids, or micronutrient-rich foods. Sub-Saharan Africans repeatedly consume the lowest intake of fruits and vegetables; on average, individuals consume less than half of the WHO Recommended Dietary Intake of 400g of fruit or vegetables per capita per day (Kiremire, Musinguzi, Kikafunda & Lukwago 2011). In one study of PLWHA in Uganda, the authors found that “only 21.8% consumed at least three meals per day, and 39.8% [consumed] at least six food-groups [...] they also reported higher dependency on

starchy staples, while foods of animal origin and fruits that play vital immunity and protective roles were inadequately consumed” (Bukusuba, Kikafunda, & Whitehead 2010, pg 184).

At the center of all meals are starchy staples, which include maize, sorghum, millet, Irish potatoes, cassava, sweet potatoes, rice and a popular type of steamed and mashed green banana dish called *matoke* (Bukusuba, Kikafunda, & Whitehead 2010, pg 185). As Osseo-Asare generalized, “in eastern Africa people do not feel they have eaten unless they have eaten their particular region’s staple food” (pg 117). However, compared to many other cultures that strongly prefer one main regional staple, Ugandans appear to have a relatively flexible idea of what the main starch item may contain. Starches are often made with tubers which are boiled, dehydrated or pounded into various forms (Osseo-Asare 2005). This can include porridge (which may be called *ugali*, *posho* or another name depending on the grain used), gruel, breads, and a mashed root vegetables (with green bananas, this is called *matoke*, and with cassava, this is called *mogo*.) These starches make up the bulk of the Ugandan diet.

James McCann points out that what people choose to eat is “a compromise between individual choice, cultural preference, and vagaries of nature” (McCann 2009 pg 17). In spite of its lack of nutritional quality, cassava is also frequently cultivated and consumed due to the ease of farming the root vegetable (Hillocks 2011). In subsistence farming, cassava is an ideal crop since it adapts well to poor soils, has high yields, and resists locust damage and drought. As a relative cheap source of energy, cassava can be planted any time of year by using stem cuttings (McCann 2009). Bananas are also a

popular starch due to their ease of growing, harvesting and preserving, as they “continuing yielding for many years and produce year-round, which makes them a reliable crop, especially in times of famine” (Osseo-Asare 2005, pg 119).

Ugandans, like many other agrarian societies, have adopted a core-fringe-legume meal pattern (Mintz & Schlettwein-Gsell 2001). In this meal pattern, the starches are usually paired with a small side dish of stew or a sauce (often called a relish) and, occasionally, a small side of legumes (Osseo-Asare 2005, pg 118; Mintz & Schlettwein-Gsell 2001). When these non-starch foods are consumed, they are done so in small proportions, served either as a side or a flavoring agent. For example, *matoke* is sometimes mashed with meat (called *matuko n'yama*) or with fish (called *matoke ngege*). Cooked greens such as cassava leaves, pumpkin leaves, cabbage, collards and kale may be used in sauces or stew (Osseo-Asare 2005). Non-leafy vegetables (steamed or boiled) may also be added to stews or sauces. A simple sauce made of groundnuts sauce is a common accompaniment, although cowpeas and meat products may be enjoyed as a side dish as well (Byaruhanga & Opedum 2008). Most Ugandan foods have a blander flavor profile and do not employ much spice beyond curry and salt (Osseo-Asare 2005).

Wild fruits are readily available in the tropical climate. The author personally observed pineapple, jack fruit, papaya and passion fruit either hanging from trees or being eaten during her trips to the village. Evidence suggests that fruits tend to be under-consumed by the target population for reasons that have not been fully explored in the literature (Byaruhanga & Opedum 2008). Fruit may be considered the snack food of young children and therefore considered inappropriate for adult consumption (Osseo-

Asare 2005; Byaruhanga & Opedum 2008). While this was not within the scope of the study design, the author only observed children eating fruit in the villages. Fruits are usually eaten raw without any additional preparation or ingredients.

There is some historical evidence to suggest that certain foods and dietary practices have taken on gender associations in the culture. For example, women appear to ingest animal protein sources rarely, which may be due in part due to a traditional taboo against women consuming chicken and eggs (Osseo-Asare 2005; Lakwo 2008). Even where this taboo is not practiced, meat, eggs and dairy products remain expensive and difficult to preserve since the majority of households do not have a refrigeration source. Beans and groundnuts are well-liked but their cost is higher than tubers, grains and other starches. Many Ugandans practice entomophagy, consuming grasshoppers (called *nseene*), termites, lake flies, ants and other edible insects, which can positively contribute to protein and micronutrient content of the diets (Byaruhanga & Opedum 2008; Bukkens 1997; Gahukar 2011; Biryomumaisho, Buyinza, & Nabanoga 2008; Byaruhanga & Opedum 2008). Protein-rich foods, particularly meats, tend to be more expensive, highly valued and are therefore eaten rarely (Ramasawmy 2012).

In traditional households men and women eat separately and at different times (Kikafunda & Lukwago 2005). Men are often served first followed by sons; males may also be routinely allocated larger portions and preference for higher-status foods (Kikafunda & Lukwago 2005; Lakwo 2008). As an HIV-positive widow in a recent study of PLWHA struggling with food security was recorded saying: “Before you get married, your parents tells [*sic*] you that you’re supposed to feed your husband, that he must eat

more food. So when I got to my husband's home, whether I was sick or anything, he must have more food according to what I was told" (Weiser et al. 2010, pg 3). Outside of marital relationships, male children may enjoy preferential treatment over female children in regards to food, but few studies have been conducted to confirm or deny this practice.

Key Theme 2: Gender Inequalities in Agriculture, Food Distribution and Income

Uganda has a primarily tropical climate which is well-suited for agricultural production (Byaruhanga & Opedum 2008). According to a 2013 report published by the Uganda Bureau of Statistics, approximately 66% of the country's population is employed in the agricultural sector; most often in small family-owned subsistence farms (UBOS). These farmers in Uganda are generally poor, live in rural places and have limited educations (FOWODE 2012). Women are the primary agricultural labor force and this reliance has increased in recent years due to the migration of men and boys from rural to urban areas for work (FOWODE 2012). Accordingly, 72% of employed women and 90% of rural women participate in agriculture compared to 53% of rural men (FOWODE 2012).

Many women farmers may not be compensated for their work. One 2008 study found that roughly 40% of all Ugandan women and 23% of women in central Uganda were employed as unpaid family farm workers (Kasirye 2011). Even when women are

paid in the labor force, their wages are far less than their male counterparts, even for the same work and at the same education levels (UBOS 2009). For example, in a 2008 survey of the labor force, Ugandan women were found to have a median salary of 55,000 UGX per month, which is 61% of the median salary of Ugandan men of 90,000 UGX per month (UBOS 2009). Another survey found that 17.9% of women living in male headed households (MHHs) possessed their own cash; this number increased to 21.3% for women in female headed households (FHHs) (Kes, Jacobs & Namy 2011).

Furthermore, Ugandan women have limited ability to own land or access credit. Therefore, the land that female agricultural workers cultivate is often owned by male family members or husbands (FOWODE 2012). In many MHHs men play the role of employers of their female relatives (FOWODE 2012). A mere 16-17% of Ugandan women independently own land in contrast to 43% of men; often, the land that women own is smaller and of poorer quality (Kes, Jacobs & Namy 2011). If a woman is married, her likelihood of owning lands or others assets decrease and she is less likely to have her name on jointly managed land ownership documents (Kes, Jacobs & Namy 2011). Not surprisingly, women in FHHs are more likely to own land (Kes, Jacobs & Namy 2011). However, males in MHH own roughly twice as much cultivatable land (FOWODE 2012). Those living in FHHs are also more likely to sell their land to obtain money to pay for basic needs (FOWODE 2012). Additionally, women farmers are less likely to utilize technological advances in agriculture (such as hybrid seeds, herbicides, pesticides, veterinary drugs, etc.) which might improve harvest yields (FOWODE 2012; Ibnouf, 2011).

Women became legally entitled to own land through the Land Act of 1998, but adherence to and enforcement of this law is not universal (FOWODE 2012). Due to a lack of legal knowledge, women may not be aware of their inheritance or land tenure rights (Kes, Jacobs & Namy 2011). In cases where women are widowed, inheritance rights favor male lineage and may be “transferred to in-laws, clan-members or creditors” (Komwa 2011, pg 15).

According to one report, agricultural tasks appear to be divided by gender, with women performing a vast majority of the agricultural and household labor (FOWODE 2012). Men chop trees, plough, dig, and purchase chemicals. The selling of crops may also be considered a male occupation which may give men greater access to income (FOWODE 2012). In contrast, women sow seeds, harvest the crops, dry crops, winnow, select seeds, and take care of livestock. Both genders are mutually responsible for weeding, crop storage and bagging. Households headed by elderly family members, regardless of gender, tend to participate in smallholder agriculture for their main source of livelihood (FOWODE 2012).

Another key division among the sexes is the types of crops that each gender grows. Women’s agricultural efforts are focused on food production, whereas men often handle cash crops (FOWODE 2012; Hyder et al. 2005). What may count as a cash crop in Uganda may change due to market demand, but frequently includes coffee, tea, tobacco, cotton, maize, cassava or beans (FOWODE 2012). Therefore, MHHs tend to allocate more of their land to produce higher value cash crops than FHHs (FOWODE 2012). The reason for this difference are less studied.

The *Gender, Land and Asset Survey* found that livestock was often jointly owned and managed by both sexes, with both having relatively equal decision-making power (Kes, Jacobs & Namy 2011). Commonly managed livestock animals include cattle, pigs, chickens and goats (Kes, Jacobs & Namy 2011). Men tend to manage larger livestock animals such as cattle while females rear smaller animals such as chickens and pigs (FOWODE 2012). Women living in MHHs tended to own livestock more frequently (50.8%) than those living in FHHs (31.5%), although in nearly all cases this livestock was jointly owned (Kes, Jacobs & Namy 2011).

In addition to cash crops, according to pages 36-37 of a UBOS report, Ugandans grow 17 critical crops, including “Cereals (Maize, Millet, Sorghum, Rice); Root crops (Cassava, Sweet potatoes, Irish potatoes); Pulses (Beans, Cow peas, Field peas, Pigeon peas); and Oil crops (Groundnuts, Soya beans, Simsim), Plantain Bananas (Food, Beer, Sweet types).”¹ The availability and relative successes of these crops varies significantly by region.

Harvests occur twice a year in the central region of Uganda in the June and December months. Individuals often eat better immediately following the harvest times, selling their wares at a low price, and then rely on inexpensive grains the rest of the year when they can afford them. The majority of rural families produce a portion of their own staple foods (Byaruhanga & Opedum 2008). However, agricultural output to household food consumption is not a linear relationship, as cash from harvest sales may be spent on items purchased outside of the home (Whyte & Kyaddondo 2004).

¹ Simsim is a local name for sesame seeds.

Due to widespread poverty and one-crop subsistence farming in villages, the modern food environment impairs nutritional variety and food security (Byaruhanga & Opedum 2008). In rural areas, vegetables are usually only available during the rainy seasons (Kiremire, Musinguzi, Kikafunda & Lukwago 2011). In many cases, poor families may grow one crop in their family plot and sell their product and seeds post-harvest for immediate cash instead of preserving food or saving seeds for leaner times (Byaruhanga & Opedum 2008). Immediately after the harvest, an influx of goods enter the market at cheap prices. As weeks and months go by and these crops become less plentiful, prices rise with demand. This cycle may contribute to household food insecurity in between seasons (Byaruhanga & Opedum 2008).

Poverty may further be exacerbated by a lack of transportation. In Komwa's dissertation research, he discovered that many already financially precarious agricultural households put themselves at further risk by selling their harvest yields to middlemen at a discount rather than directly selling to consumers in the marketplace due in part to a lack of access to transportation (2011). These middlemen buy crops cheaply from farmers to sell at higher prices in towns for a significant profit margin (Parker, Jacobsen & Komwa 2009). In this common situation, the middlemen gain the majority of the profits, thereby ensuring that the farmers remain in a continued cycle of poverty.

Food Storage and Preservation

Even if nutritious foods are available, they may be difficult to keep fresh in a tropical climate. The ineffectiveness of native food storage methods to prevent post-

harvest food losses may be a strong contributor to food insecurity (Costa 2014).

Traditional methods of storage include spreading tubers on the ground to prevent spoilage, and using sacks to store grains and legumes. By unintentionally exposing crops to chemical, microorganisms or moisture, these practices can lead to post-harvest losses, mold growth and aflatoxin contamination which is highly carcinogenic (Costa 2014).

According to a recently published action research evaluation trial by the UN World Food Programme, traditional methods of storage in Uganda were assessed for post-harvest losses over a period of time (Costa 2014). In this trial, traditional storage methods led to a 21.1% in maize loss over 30 days, 37.25% in 60 days and a 59.48% loss in 90 days. Similar losses were reported for Sorghum and Beans, and, with a 79.22% loss after 90 days, the cowpea crop fared worse of all (Costa 2014). Therefore, traditional Ugandan post-harvest storage methods are likely to contribute to a loss of income and health status in households that utilize them.

The chief food preservation technique is the sun-drying of food for dehydration (Kiremire, Musinguzi, Kikafunda, & Lukwago 2011). Dried unripe bananas (called *mutere*) are dried over the course of two weeks and then stored in case of famine; usually ground into flour prior to use (FAO 1984). Similar dehydrated products may be made out of cassava, yams and various leaves. In some cases, after dehydration, the starches are ground in to flour. Additionally, a thin fermented porridge called *obushera* is made through the following methods:

[*Obushera*] is prepared by using germinated fermented grain flour. The millet or sorghum is mixed with wood ash and water; it is then left to germinate and ferment. This process produces enzymes which partially break down the grain starch. Acid-forming bacteria grow on the substrate

during fermentation. The grain is subsequently washed, dried and ground to a fine flour which may be cooked with banana paste, crushed sesame seeds and sugar. (FAO 1997)

Banana beer may be made by both Ugandans and Rwandans (FAO 1984). Leafy green vegetables may also be dehydrated in the sun and used later in cooking (Godfrey et al. 2013). Fish is sometimes smoked and dried to preserve (FAO 1997).

Household Labor Dynamics and Food Security

The authors of an exploratory study in Tanzania and Kenya introduced the concept of a “triad” of food security, gender disparity and poor health outcomes (Hyder et al. 2005). The researchers argued that all three (gender inequality, food access and health) should be considered as interconnected factors in any research or intervention undertaken within the East African context. The authors sought to understand the interrelationships of this triad better by conducting a dozen qualitative interviews and four discussion groups with women farmers in Tanzania and Kenya. In order to learn more about their participants’ day to day activities, the researchers created and piloted a novel tool that allowed their subjects to rank the estimated amount of time that men and women spent on daily activities through allocating an allotment of beans on a board with pictures of represented tasks. Through this ranking system, the researchers discovered a clear pattern of women taking on a greater share of food preparation and farming labor (Hyder et al. 2005). Through an in-depth thematic analysis of the transcripts, the authors concluded that the women sampled were burdened by a disproportionate amount of food procurement activities, in addition to other household responsibilities (e.g. cleaning,

fetching water, childrearing etc.). Many of the women interviewed reported a limited ability to make health-related decisions for themselves or their family members, which the authors attributed to sexual inequalities. The researchers theorized that the time spent on household labor combined with the lack of empowerment within marital relationships had potentially negative consequences on women's health statuses (Hyder et al. 2005).

Strong links between women's labor, health and food security status is affirmed by other published research in the region (Kerr 2005; Komwa 2011; Kassie, Ndiritu & Stage 2013). A sociological development researcher, Kerr applied a historical framework to understand modern day food security issues for northern Malawian small-scale farmers. Through empirical research and in depth qualitative interviews, Kerr discovered that women had limited decision making power due to ingrained household gender roles and a patrilineal society where only men may hold entitlements or land (2005). If the primary agricultural and kitchen worker (i.e. female) in the household became ill, the rest of the family members' access to foods suffered as a direct result (Kerr 2005).

The potential interconnections between alcoholism, domestic violence, poverty, and food access are also beginning to be explored by the public health nutrition literature. Kerr highlighted was the role that culturally-accepted alcohol abuse and domestic violence can play in disempowering women and disrupting livelihoods (Kerr 2005). In many cases, Kerr found that the most food insecure Malawian households were ones in which men regularly used household income to purchase and abuse alcohol. (Kerr 2005). Approximately 74% of women report experiencing partner domestic violence during their lifetime (UBOS 2006). More disturbing, researchers found in a case study in Rakai,

Uganda found that 70% of males and 90% of women believed that domestic abuse against women was justifiable in some cases (Mullinax et al. 2013). In one model, women's access to cash, housing or other resources decrease the likelihood of experiencing domestic violence by 17%; this is most likely because these women have an "exit option" (Kes, Jacobs & Namy 2011, pg 15). Conversely, alcohol misuse on the part of males or female partners, increased the likelihood of domestic abuse from 10-17% (Kes, Jacobs & Namy 2011).

Regardless of the reasons for food insecurity, when women are malnourished due to insufficient access to a variety of nutritious foods or illness, the related drop in their productivity can have negative repercussions for their entire household. Adult females habitually represent an unfairly large proportion of the labor force. As Komwa discovered, "the work-hour estimates demonstrate that women consistently work a higher number of hours than men, regardless of the type of work activity" (2011, pg 65). Therefore, a loss of productivity in an adult woman can impact the household's food security status, since growing, harvesting, storing and preparing food is a culturally feminine occupation and responsibility (McCann 2009). According to Fran Osseo-Asare, there remains a:

strong division of labor in eastern African society. As in other parts of sub-Saharan Africa, cooking has historically been a woman's domain, with kitchens off limits to men: women cook and serve, men dine. The work remains largely labor intensive. (2005, pg 109-110).

Authors Byaruhanga and Opedum found that males over the age of 12 are "culturally precluded from entering the kitchen," which may further exacerbate the idea that food preparation is feminine work (2008, pg 2). Often, kitchens are kept separate from the

main property, either in a small spare shed or kept outside next to the main property. The author observed that the majority of villager's food was cooked over low-technology charcoal ovens. With few shortcuts and dangerous conditions, cooking is an often dangerous and backbreaking enterprise.

In addition to the labor of growing, harvesting and preparing foods, females are responsible for gathering firewood, childrearing, cleaning and other household duties. Women are also tasked with the majority of the health-related caretaking, which can make for an added burden when someone in the family is ill (Komwa 2011). Presence of HIV in a family member in particular may have a huge impact on household food security. Because women typically care for the ailing, household agricultural production decreases (Economic and Social Development Department 2001). Reductions in labor can contribute to “a downward spiral of deterioration of health along with increased poverty” (Komwa 2011, pg 65). This decreased productivity, coupled with high funeral costs and health costs, may destroy household economic welfare, leading families to borrow money or sell key assets in order to survive. Children may also discontinue their schooling to help with caretaking or household activities to ensure the family's survival (Economic and Social Development Department 2001). One study in Uganda revealed that 65% of the AIDS-affected households were obliged to sell property to pay for care (Economic and Social Development Department 2001). Additionally, HIV-infected individuals may receive preferential treatment with regard to nutritious foods, thereby reducing the diet quality of healthier family members (Komwa 2011).

Key Theme 3: The Potential Role of Gender of the Head of Household

Another persistent theme in the literature regarding gender and food security in Sub-Saharan Africa was the potential role of the sex of head of the household in influencing the food security and nutrition profile of women and children (Haidar & Kogi-Makau 2009; Kassie, Ndiritu & Stage 2013; Kennedy & Peters 1992; Kerr 2005; Lemke, Vorster, van Rensburg & Ziche 2003). These researchers seem to agree that the gender of whom heads the household matters, but how and why it may matter is debated. Roughly 26.3% of rural households are headed by women and due to reduced resources these FHHs are more vulnerable to income shocks (FOWODE 2012). While the majority of the findings tend to agree that FHHs tend to be more food insecure than MHHs, the explanations for this correlation differ.

For an illustrative example, researchers found that FHHs were associated with high incidence of food insecurity in Kenya (Kassie, Ndiritu & Stage 2013). By contrast, participants were more likely to be food secure if they lived in MHHs. The researchers differentiated between *de jure* FHHs (where a woman is legally in charge of her household and is likely to be single, divorced, widowed or separated) and *de facto* FHHs (when a woman is married but the husband is not physically present), which they conjectured might be an important distinction. The authors theorized that the primary reasons for the disparities between FHHs and MHHs were due to women's reduced opportunities for economic participation and growth. A dearth of assets, education, land, livestock and credit were all potential barriers to accessing safe and nutritious foods. Through an exogenous switching treatment effect regression, Kassie, Ndiritu and Stage

were able to demonstrate that even where FHHs and MHHs were of a similar economic status, FHHs were more vulnerable to food insecurity due to the head of household's inability to employ all available resources in times of crisis (2012).

An older study in Malawi and Kenya confirmed the concept that FHHs should not be looked at as a universal group, but rather should be broken out into *de facto* and *de jure* subcategories (Kennedy & Peters 1992). These researchers found that the while majority of MHHs had the highest mean incomes, both types of FHHs tended to spend a greater share of their total budget on food. While Kennedy and Peters found that *de facto* FHHs experienced the lowest income levels out of all three groups, these households allocated more calories out of their own food supply to give to their children. Furthermore, the authors concluded that any income controlled by women (regardless of the household head) seemed to have a positive effect on children's food security and nutrition statuses (Kennedy & Peters 1992).

Livestock can be another indicator of household wealth in East Africa, as evidenced by the results of an interdisciplinary research study in urban Kenya that investigated gender roles in livestock keeping (Simiyu & Foeken 2013). The researchers found key differences in the division of responsibilities between genders. For example, Simiyu and Foeken observed that men were more involved in decision-making and managed larger livestock that contributed more to income (such as cows). By contrast, females often maintained smaller animals more often used for household consumption (e.g. chicken) and were discouraged from selling animal products (Simiyu & Foeken 2013). One important distinction that the authors made was "women's role in livestock

keeping is geared more towards improving household nutritional and food security status, while men's role is motivated more by personal benefits" (pg 578). However, both roles were considered of complimentary importance to the family's livelihood (Simiyu & Foeken 2013).

A study of data from male-dominated farmers' groups in Kenya looked at the banana harvest which was traditionally considered a female-grown crop (Fischer & Qaim 2012). They discovered through their analysis that as men gained greater control of the family's banana farming operation, the overall dietary diversity of the household suffered (Fischer & Qaim 2012). It is important to note that there was no reported significant difference in calorie consumption, but rather a diminishment in the variety of foods consumed within the household.

Evidence from Ethiopia has suggested that this gender of the head of the household was influential to the nutrition status of children, and in particular to female children (Haidar & Kogi-Makau 2009; Hadley, Lindstrom, Tessema & Belachew 2007). Haidar and Kogi-Makau discovered that the nutrition status of children living in MHHs was markedly better than FHHs. This led the authors to speculate that this was most likely due to males' greater access to economic resources over females, thereby attributing it to a product of gender inequality. However, when compared to the male children, the researchers also discovered that chronic under nutrition was also more common in females regardless of the household type (Haidar & Kogi-Makau 2009). This could suggest that men and boys were receiving preferential treatment in food distribution. In another Ethiopian study, male adolescents were given preference over

their female counterparts in food insecure households (Hadley, Lindstrom, Tessema & Belachew 2007). This disadvantageous treatment can lead to long term health and psychological affects for young women, as well as reinforcing a cultural norm of male supremacy for future generations.

A qualitative study looking at household power dynamics and the underlying causes of food insecurity in South Africa found that women in mutually headed partnerships and FHHs were both more food secure than MHHs in spite of their unequal access to land and property (Lemke, Vorster, van Rensburg & Ziche 2003). Below were some of their key findings:

It is striking that, in households where men dominate, there were more worries about the food situation than in households with partnership relationships and in households led by women. This is despite the fact that per capita incomes in men-led households were higher than in both of the other categories. [...] Households led by women, despite more limited economic resources, are not as disadvantaged as one would expect. They often even achieve a status better than or equal to that of households led by men, with social networks of relatives and friends being of great importance. (Lemke, Vorster, van Rensburg & Ziche 2003, pg 761-762).

Therefore, it cannot be universally assumed that FHHs are always more food insecure than MHHs. Indeed, in this study, children living under MHHs were more likely to be hungry (Lemke, Vorster, van Rensburg & Ziche 2003).

Inconsistently, there are researchers that question the assumption that females bear the nutritional brunt of food insecurity within the household. In a 2011 article published in the *American Journal of Agricultural Economics* made a challenge to the idea that gender inequality should be universally assumed in an East African context

(Villa, Barrett & Just). In their study of East African pastoralists, the researchers found that the head of the household – no matter what their gender happened to endure the:

[...] nutritional burden when household income is below mean, while other cohorts disproportionately enjoy the nutritional gains when it is above mean.... [Our results] imply that there could be a danger in assuming that females are universally worse off and thus excluding males from being targeted in food and nutrition programs. (Villa, Barrett & Just 2011; pgs. 1063 & 1079).

In other words, during times of scarcity, regardless of their gender, the head of the household is likely to bear the brunt of the income shock when it comes to food security. Villa, Barrett & Just argue that the global nutrition community should not assume that females universally have the worst access to food in a food insecure household (2011).

Literature Gaps and Implications

One common assumption in the literature is the notion that who controls the income in the household matters a great deal. Females who do not control their income tend to be more food insecure, leading to the prevalent theory that as women become more economically empowered the food security status of the entire household will improve as a direct result (CARE 2013). Actual evidence to support this widely held belief is limited and inconclusive (IFPRI 2013; Akhter 2003; Doepke & Tertilt 2011). Nonetheless, researchers have called for more studies on the efficacy of economic interventions (e.g. microcredit for income generating activities) and other female-empowerment programs in order to see whether these interventions can increase

household food security and nutrition status of the entire household (Ibnouf 2009; The Food Security Learning Framework 2013).

Evaluation tools that capture this data are also greatly needed. Accordingly, the conceptual model employed for this project is *The Food Security Learning Framework* which was created by the M&E Harmonization Group of Food Security Partners in July

Framework dimensions and relationship to improved food security



Figure 1: Framework (M&E Harmonization Group of Food Security)

2013. In this meeting of all the major players in the international public health field, key recommendations were made about what types of

critical gaps in knowledge the community should prioritize filling. Of particular concern to the participants was designing more M&E methodologies to collect evidence on whether improved gender equality led to greater food security in developing countries.

A wealth of materials exist about the twin issues dietary homogeneity and food insecurity in Uganda and while gender issues are acknowledged, few resources attempt to measure gender norms as a direct potential contributor to these problems. While published information discussing the imbalanced nature of women's labor is available, the author could not find any studies that looked at the gender of the head of the

household and its potential relationship to nutrient diversity and food access in Uganda. Therefore, the author has consulted and methods and foundational ideas from the aforementioned studies. Some of these tools and research questions have been reimagined and reapplied to a central Ugandan context. By focusing on the relationship between gender of the head of the household and food diversity and scarcity in this population, this research will attempt to fill an existing literature gap.

CHAPTER THREE: METHODOLOGY

This project was designed to be a baseline study of gender, food insecurity and dietary diversity of women of reproductive age (18-49) in two villages in the Wakiso District. All of the methodology was approved by the George Mason University Institutional Review Board (IRB) in December of 2014. The data was collected by four researchers over a three-week period in central Uganda in January of 2015. A mixed-methods study, the author has employed both quantitative and qualitative tools to capture data. The discussion between whether to use qualitative or quantitative methods in this type of research not new; as authors Fenton, Hatfield and McIntyre evaluated, “while quantitative methods allow the researcher a broad picture of the frequency and severity of food security, qualitative methods give a more in-depth understanding of what it means to be food secure or food insecure” (2013; pg 2). Therefore, this investigation utilizes both methods in an effort to capture the best of both techniques. Given the time and financial constraints, however, a more heavy emphasis of this project was decidedly on the qualitative data collection which can unearth “gender and intra-household relations, as well as social networks and income from informal sector activities, are often not uncovered by conventional statistical methods [...] qualitative research can reveal the unexpected and furthermore empowers people, as their voices are heard” (Lemke, Vorster, van Rensburg & Ziche 2003). The purpose of including quantitative data was to describe the demographic make-up of the sample as well as to affirm, contrast or explain

information gathered in the discussion groups.

Partnerships and Research Support

The author partnered with Bega Kwa Bega (also known as Bambi Uganda Orphans), an Ugandan-American non-profit based in both Oak Hill, Virginia and Entebbe, Uganda. Bega Kwa Bega roughly translates to “shoulder to shoulder” in Swahili. In 2004, Executive Director Conche McGarr established the organization in response to the devastation of the HIV crisis and the country’s political uncertainty. Today, Bega Kwa Bega provides technical and educational assistance to communities in ten key rural districts in northern, eastern and western Uganda. The non-profit’s mission is “to improve the living conditions of Ugandan orphans and the families who care for them” (Bambi Uganda Orphans 2014). To fulfill that purpose, Bega Kwa Bega takes a holistic path to develop long-term, sustainable solutions by promoting community involvement in education, economic development, agricultural, water and health projects. More recently, Bega Kwa Bega implemented four food demonstration gardens in villages that the Nutritionist Musubika determined had the highest rates of malnutrition in the region, including two villages chosen for the study: Sentema and Katiti (Musubiki 2014).

In addition to Conche McGarr’s critical support of this project, Bega Kwa Bega staff Program Manager Ssagala David, Nutritionist Musubika Mary and Farm Manager Kamoga Gerard were integral to success of the research.² Ssagala transported and

² In Uganda, family names generally precede given names.

introduced the author to the appropriate village leaders. Musubika and Ssagala translated, negotiated and coordinated with the council members to recruit the study sample.

Furthermore, both Musubika and Kamoga assisted with gift, collected data and translated as needed on the study days.

In addition to the Bega Kwa Bega staff, the author hired a translator and highly trained researcher named Ndahura Maureen. Ndahura was hired to run the discussion group, interview participants, as well as to translate and transcribe discussion group recordings. A graduate of the University of Makerere, Ndahura is a native Ugandan and speaks English, Swahili, Luganda, Runyoro, Runyankore and Rutooro.

Sample Recruitment and Eligibility

The participants of this study were recruited from two villages called Katiti and Sentema which are both found in the Kakiri subcounty of the Wakiso District. Located within the Buganda subnational kingdom, the Wakiso District is home of the country's capital and largest city Kampala, which is situated approximately one hour from the study sites. The villages were also located within a short driving



Figure 2: Wakiso District in Blue, Uganda (USAID, 2013)

distance (approximately 30 minutes) of Entebbe, another large town in the district and the location of the international airport.

The study's original inclusion criteria was females between the ages of 18-49 years living in Sentema or Katiti villages (although this age range was expanded for reasons that will be explained later in this chapter). All males and girls under the age of 18 years were excluded. In addition to George Mason University's IRB approval, the author requested permission to recruit for the study from the Katiti and Sentema's village council members. These village council members agreed, and hand-selected the participants based upon the requested eligibility criteria. However, either owing perhaps to a miscommunication with council leaders or possibility to over-eager villagers, some women outside of the 18-49 years age range showed up on the study day. Thus the method of outsourcing the recruitment was a limitation of this study design and its potential effects on the results are discussed in depth in Chapter 5. In addition to undertaking the recruiting, these council members also determined the space where the research would be conducted. In both cases, they chose the farm demonstration sites already used for Bega Kwa Bega classes which provided a reasonable amount of privacy.

The number of desired participants (60) was chosen after a review of published similar studies about food insecurity in the literature. For example, in a mixed methods study of the effects of climate stress on food insecurity among Inuit tribeswomen, the author chose a sample size of 36 (Beaumier 2010). In another of Beaumier's studies of Inuit women and food security, a sample of 66 community members were interviewed and asked to participate in focus groups, (Beaumier & Ford 2010). The author weighed

the approximate sample sizes of each of these studies to determine an approximate ideal range that was both 1) feasible in a three-week data collection time period and 2) likely to provide rich qualitative results of a diverse range of different experiences. Therefore, the author chose a realistic sample goal of 60 participants in order to meet or exceed the samples of similar studies and lend credibility to the results.

Thanks to the recruiting efforts of the village council leaders, the researchers interviewed approximately 67 women. These participants were told by the council leaders that refreshments would be provided, as well as gifts of multiple varieties of vegetable seeds and a kilo of amaranth porridge as a sign of appreciation their participation.^{3,4} The cost of these gifts and refreshments equaled to an average of approximately \$4.00 USD per participant. The author remains unaware how these refreshments and gifts might have influenced participation or data collected.

As mentioned previously, the author requested that village council members recruit women between ages 18-49 years to participate in the study. Fifteen women who did not meet the eligibility criteria were interviewed and participated in the discussion groups. The three participants under the age of 18 years were removed from the quantitative data completely. The author had to determine whether or not removing the 12 women that were older than the study age (50+ years) would significantly change the

³This extra-nutritious porridge was locally milled variety. The recipe came from Musubika Mary who learned about it during her university nutrition studies. Musubika preferred to use it in the field to combat malnutrition rather than using ready to use therapeutic products. Musubika also negotiated and coordinated with the miller and taught the author how it was made. The porridge included amaranth flour, silverfish powder, maize flour, soya flour and ground millet. It is prepared with water, milk and sugar.

⁴The author asked the council members what refreshments they thought would be most appreciated by the participants. They requested soda (of which Coca-Cola and Fanta seemed to be the most popular varieties) and queen cakes which are small, dense cupcake-like cakes without icing.

results. In order to decide this, the author separated and grouped the women into two different age categories: reproductive age (ages 18-49 years; n= 52) and postmenopausal (aged 50+ years; n= 12). Once the two groups were divided, the author ran an independent sample t-test to compare the postmenopausal HDDS and HFIAS scores with the reproductive age group. Based upon the outcome of the independent sample t-test comparison, the author did not reject the null hypothesis of the equal HFIAS and HDDS means across both age groups. The results of the conclusion are included in Table 1:

Table 1: Age Category and Diet (HFIAS/HDDS)

	Age Category	N	Mean	Std. Deviation	Sig.
HFIAS	Reproductive Age (18-49)	52	9.69	6.121	.268
	Postmenopausal Age (50+)	12	7.58	4.660	
HDDS	Reproductive Age (18-49)	51	6.33	1.774	.548
	Postmenopausal Age (50+)	12	6.67	1.435	

Therefore the author could safely include these older women in the study sample. Additionally, the author could use all of the data with confidence that the results would not be significantly altered by including women outside of the original plan.

Consent and Confidentiality

Every participant signed a consent form before data collection began. The consent form was read out loud in Luganda to the entire group to make sure it was understood by all before signatures were collected. The form was also available on paper in Luganda and English for participants to read if they preferred. Ink was available for thumbprints for those who were illiterate. Participants' names and thumbprints were not recorded on any of the data beyond the consent form. All data continues to be kept safe in a locked box and will be shredded five years after the study is published. The author placed a unique, two digit number which was roughly based upon the order of which they were interviewed (01, 02, 03, etc.) to ensure the anonymity of responses. Qualitative discussion group transcript responses were not attributed to any specific individuals and therefore did not require coding. All audio records will be destroyed five years after the study is published.

Data Collection Methods

Quantitative data was collected through one-on-one interviews and qualitative data was collected through the focus discussion groups. The interview questionnaires were conducted right before the discussion group so that both types of data were collected from the same sample (15 to 36 people per group) and within the same day. The interviews were conducted in Luganda by Musubika, Ndahura and Kamoga and took approximately 15 minutes per person. The discussion groups were led in Luganda by Ndahura and took approximately 60 minutes. A similar model with 45-minute interviews

followed by 60-minute discussion groups was employed by other George Mason University public health researchers (Parker, Jacobsen & Komwa 2009).

Quantitative Methods

A questionnaire was developed in English and translated into Luganda. The questionnaire consisted of basic demographic questions about the participants' age, religion, marital status, tribe, number of and sex of living children, village and a simple yes/no question about whether or not they earned an income. A full list of these questions and their related Luganda translations are available at Appendix A. The interviewers asked questions in Luganda and recorded the participants' answers by hand in English. Two related pre-existing quantitative tools were employed during the private interview to assess dietary diversity and food access levels. Both tools have been used in developing countries and validated extensively; recently the Household Food Insecurity Access Scale (HFIAS) was successfully employed in another study in the Gulu and Soroti districts of Uganda (Kadiyala & Rawat 2012). The author chose to ask basic demographic questions before quantitative tools to gather more insight the sample and build in more points of comparison with the dietary diversity and food security results. For example, the answer to the question "who is the head of your household?" enabled the researcher to separate the participants into two groups (those living in FHHs verses those living in MHHs) in the analysis.

Household Food Insecurity Access Scale (HFIAS) Tool

The author employed the tool developed by Food and Nutrition Technical Assistance (FANTA) project (Coates, Swindale & Bilinsky 2007). The HFIAS was adapted from U.S. Household Food Security Survey Module for use in developing countries. HFIAS is a nine-question assessment method that is quick and easy to administer. It is useful in determining household food security status and capturing the complex set of experiences and attitudes that accompany food insecurity. Each question has two related parts; for example: “1. During the last month did you worry or have anxiety that your household would not have enough food? 2. If so, how often?” The indicator code used to respond to the second portion of the question is as follows: 1. Rarely (1-2 times); 2. Sometimes (3-10 times); 3. Often (10 or more times). By requesting that the participants answer these nine questions and provide frequency indicators, food insecurity can be assessed through multiple viewpoints. Most pertinent to this study, an individual HFIAS score can be created by adding all of the indicator codes together to get a score between 0 (highly food secure) and 27 (highly food insecure).

The HFIAS guide provides specific instructions on how to evaluate the data for various indicators (Coates, Swindale & Bilinsky 2007). The author determined the percent that responded yes to question by compare the number of households with a response of “yes” followed by a frequency indicator code divided by the total number of households that responded affirmatively to that question, multiplied by 100. Below is a fictitious example to demonstrate how this data was analyzed:

Question 4. Did you or any household member have to eat some foods that you really did not want to eat because of a lack of resources to obtain other types of food? Yes/No

- If so, how often? 1. Rarely (1-2 times); 2. Sometimes (3-10 times); 3. Often (10 or more times)

Participants who said yes to this question regardless of frequency (50)

The number of participants that responded in total (100) $\times 100 = 50\%$

From there, the researcher could determine that in the past month, 50% of the sampled households had to eat some foods that they did not want to eat at least once in the month because of a lack of resources to obtain other types of food.

HFIAS categorical variables were needed to assess relative food security.

However, this posed a challenge as FANTA no longer recommends a set of defined perimeters for the HFIAS score. Currently “there is no universally accepted approach to setting these cut-off points” due to the variety of contexts in which the scale is used (FANTA 2007). As researchers from the Tufts University explained:

It is worth noting that the choice of cut-offs used in the development of the categorical indicator for each of these measures was ultimately subjective. (Maxwell, Coates & Vaitla 2013)

Therefore, the author created her set of own categorical variables to use as indicators based on simple arithmetic. Since scores ranged from 0 to 21, the author evenly divided the remaining scores into three distinct categories (≤ 6 = food secure to mildly food insecure; 7 to 13 = moderately food insecure; ≥ 14 severely food insecure). Mean HFIAS scores were also generated and compared within groups. This enabled the author to see where each of the scores fell within the contextual continuum. The author also considered the option of dividing the scores into three even groups, but this was rejected after further consideration as it represented each of the categories (food secure to mildly food

insecure, moderately food insecure, and severely food insecure) to be equally populated which rendered it more difficult to capture severity.

Household Dietary Diversity Score (HDDS) Tool

This study employed the FANTA's Household Dietary Diversity Score (HDDS) tool, described in FAO's 2011 *Guidelines for measuring household and individual dietary diversity* report (pg 10). However, based on the reported best practices of a similar study, this questionnaire was not be read wholesale to the participants (pg 23). Rather, the interviewers conducted 24 hour dietary recalls during the time of the interview, using the multi-pass method (USDA 2014). Participants were asked to recall what they consumed the preceding day from morning until evening, including snacks and beverages. In the case of mixed dishes, subjects were pressed for the ingredients in each so that all of food groups consumed were represented. The information was recorded by hand during the interview and was analyzed after, placing each food group into its proper category in HDDS tool. The author believed that this would be a less tedious for the interviewee and potentially more accurate method than reading the HDDS questionnaire to the participant and checking off the categories of foods consumed.

The HDDS tool reflects nutrient diversity by recording foods consumed in a particular food group within the recall period. This tool can give a rough idea of what foods may be commonly consumed and available, providing a snapshot of nutrition quality on a village-by-village basis at a particular moment in time. A single 24 hour dietary recall is an imperfect method, however, in part because results can easily be

skewed on days where the diet is altered from typical patterns (funerals, weddings, holidays, etc.). In order to add veracity to the HDDS results, the 24 hour recall template inquires as to whether or not food was consumed inside the home or outside. If food was eaten outside of the home, this may call into question or invalidate the collected data because the data collected may not reflect daily consumption patterns. Additionally, dietary recalls participants may forget, embellish or be dishonest about what they ate.

The author made minor modifications to the HDDS tool. For example, the author added various typical Ugandan food items such as *matoke*, *mogo* and *ugali* to clarify where common food items fell into which food groups. Given the common practice of entomophagy, the author added insects under the “meat” category since the nutrition profile of insects are similar to that of animal meat.

After the 24 hour recall was conducted, the author used the data to create a total dietary diversity score. Each respondent received a score of 1 for each food group that they had consumed with a possible maximum of 14. A larger score indicated a more diverse diet. There is no universally accepted cut-off for the HDDS tool to determine if a diet is adequately diverse (Maxwell, Coates & Vaitla 2013). However, the author chose to employ a previously piloted strategy from a similar study from Burkina Faso (Savy et al. 2005). In this study, the researchers grouped the dietary diversity score into three categories. Scores of 1-3 were considered to have low dietary diversity; scores of 4-5 were medium diversity and scores 6 or above were considered to have high dietary diversity (Savy et al. 2005). By using these convenient cut-offs the author could determine the percentage of the sample that had low, medium or highly diverse diets on

the day of the 24 hour recall. This cut-off method is useful but it has shares some limitations with the HDDS tool. For example, when scoring respondents would receive an extra point each for entries like tea and sugar which might make their diets appear more diverse while not adding significant nutritional value.

The percent of respondents who had consumed foods within the various food groups was determined and analyzed. The 24 hour recall data was arranged into a graph to determine the percentage of respondents that had consumed a given food group in order to detect consumption patterns. Each respondent received a score of 1 for each food group that ate. This analysis was used to detect patterns in consumption which confirm or contrast with the responses in the discussion group.

Qualitative Methods

The one-on-one interviews were immediately followed by the discussion groups. Three discussion groups were conducted in total, two in Sentema and one in Katiti. Due to higher than expected turnout, each discussion group contained approximately 15 to 36 individuals. All of the sessions were recorded by two different types of audio equipment, one for back-up in case of a technical mishap. Participants sat on woven floor mats (called “*mukeka*” in Luganda) in close proximity to each other, often with their small children in tow.⁵ The researchers served queen cake and soda during the discussion group to promote a relaxed atmosphere.

⁵ On one memorable study day, a loud rooster joined the discussion group. The author chased the rooster away several times to prevent responses from being obscured in the recording. The participants appeared to find this incident highly amusing.

As the translator, Ndahura facilitated all of the discussion groups. She began with a simple introduction of the researchers before touching briefly on the goals of the study. Ndahura then reminded the group that the responses were audio recorded before establishing ground rules so that participants understood the importance of confidentiality, not talking over one another, and respecting one another's opinions. Ndahura asked the questions based on the provided discussion script (which she also had previously translated). The author designed the discussion group guide containing roughly 28 questions; some sample follow-up questions were also included in cases where more clarity or insight was desirable. Additionally, the author authorized Ndahura to use her own judgment in framing and asking pertinent clarifying questions. Before the discussion group, Ndahura and the author strategized on how to best facilitate so that no one person is dominating or derailing the discussion. A similar semi-structured discussion group questionnaire was used in a study of food insecurity in populations with HIV/AIDS, allowing the researchers to yield richer insights (Parker, Jacobsen & Komwa 2009).

The questions were purposely phrased to be open-ended so that they might be answered in a descriptive way. The discussion group was designed to capture primarily the ways in which gender norms and attitudes might influence household food procurement and distribution, division of labor and income, and choices about foods consumed. A full copy of the discussion group guide with Luganda translations is available in Appendix E.

Ndahura translated and transcribed the discussion group recordings from Luganda to English transcripts. The author analyzed the transcripts using NVivo software using

thematic analysis. The author drew some tentative assertions based on reoccurring leitmotifs from the discussion groups and grouped by key themes of agricultural production, income creation and use, food consumption, workload and labor distribution, as well as cultural body size ideals and their potential impact on food choices. Reoccurring responses were highlighted as well as quotations from participants containing interesting or relevant answers. The author tried to also include alternative viewpoints where one participants' response seemed to conflict or differ from the opinion of the majority.

Data Analysis

The quantitative data was analyzed through SPSS statistics software version 21.0 using descriptive techniques, chi-square, bivariate correlations, one-way ANOVA and independent t-tests depending upon the most appropriate method for the variables in consideration. For instance, an independent samples t-test was run to determine whether the gender of the head of the household influenced the HFIAS and the HDDS scores in a statistically significant way. Statistical tests were run to determine whether there were any strong associations between diet and various demographic factors such as religion, village, tribe or country, marital status, the number of living children, education level or whether or not they earned income.

Certain groups were categorized by the author for the sake of statistical convenience in analysis. For example, religious affiliations were divided into three main categories: Catholics, Protestants and Muslims. It is important to note that many

Protestant participants identified as a member of different churches including Pentecostal, Born Again, and Anglican faiths. Additionally, marital status was grouped into four categories. These include married, single, widowed, and lastly a category that encompasses the following: living separately but still married, separated or divorced. Tribal and country affiliation was also simplified for statistical convenience. As the dominant tribe in the Central region, the Baganda received their own category. The following other Ugandan tribes (Basoga, Banyoro, Bankozo, Bunyoro and Banyankole) were clustered together in the study sample into an “Other Ugandan Tribes” category. Since some of the study participants were from outside of the country, reporting national ties to Rwanda or the Republic of Burundi, and they were grouped together into a third “international” category. Marital status, religion, and tribe/country affiliation were compared with the HFIAS and HDDS using one-way ANOVA tests in order to determine if either showed a statistically significant influence on food security and dietary diversity scores.

Using the bivariate correlations test, the author compared the number of children with the HFIAS and HDDS in order to determine if this number influenced the food security and dietary diversity scores. It is important to note that the author trained the interviewers to request the number of currently living children. Therefore, these numbers do not reflect any miscarriages, stillborn births, or children who may have died after they were born. A bivariate correlations test was also run to compare the participants’ education level with the HFIAS and HDDS in order to determine if this would have a statistical significance. For convenience, the author grouped the education levels into

three categories: no education, some school through primary school grade six, and educated up to secondary school or more. It is important to note that due to changes in the education system in Uganda, some women attended primary school up to a grade level of seven. These individuals were coded along with the secondary level students for the purposes of statistical analysis.

Checking the Data for Normal Distribution

In order to determine whether the data was accurate, the author verified whether the HFIAS scores (see Figure 3 below) and HDDS (see Figure 4 below) results had normal distribution curves. Using SPSS version 21.0, the author used the frequencies tab to run a histogram of the HFIAS and HDDS scores. The distributions were relatively normal, with a moderately negative skew for the HFIAS and a slightly positive skew for the HDDS score. The author then concluded that the data could be used without concern.

HFIAS Score

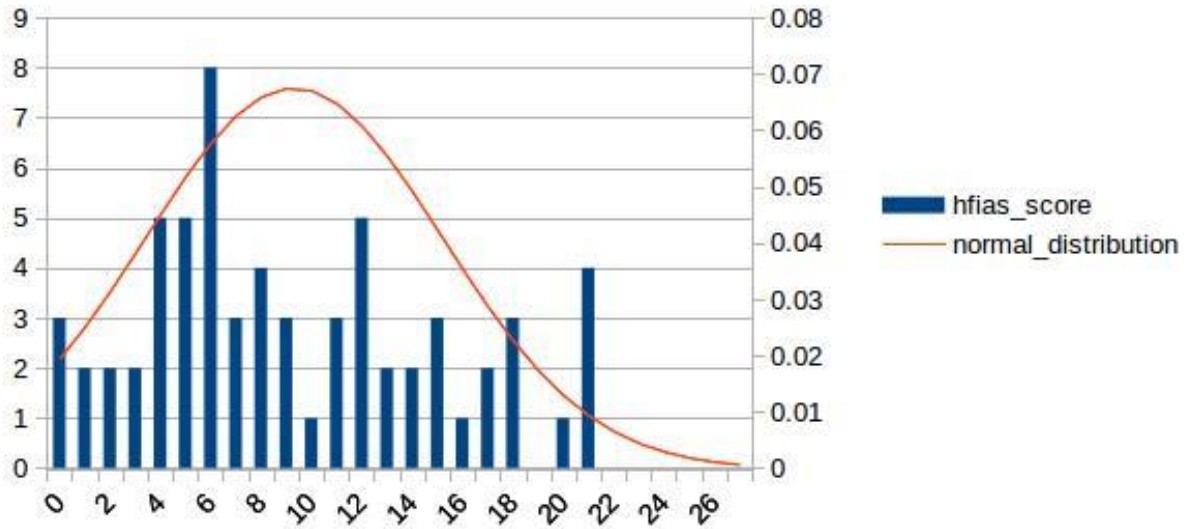


Figure 3: HFIAS Distribution

HDDS Score

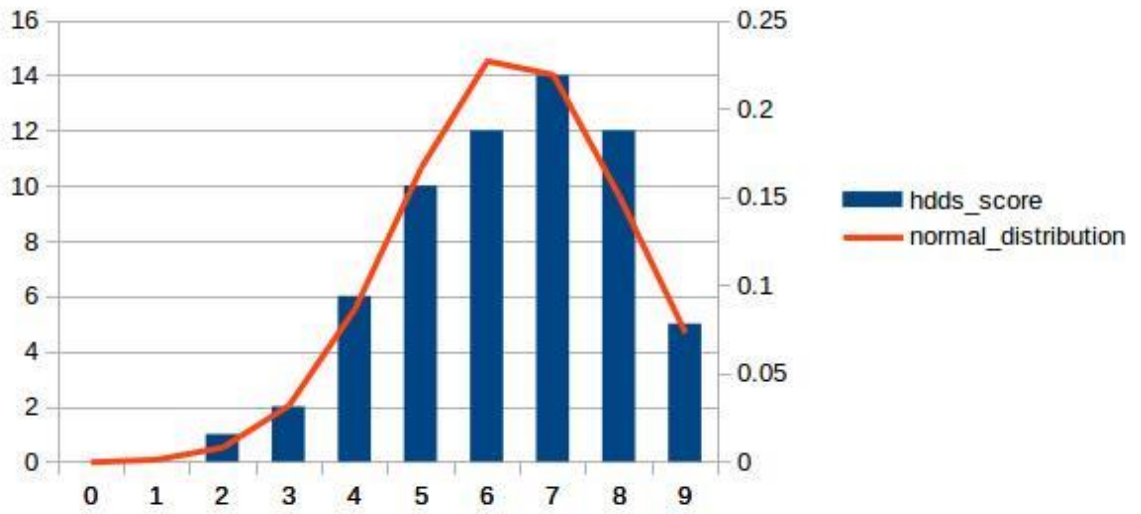


Figure 4: HDDS Distribution

CHAPTER FOUR: STUDY RESULTS

Detailed in this chapter are the findings of this study beginning with an overview of the demographics of the sample, followed by the results of the quantitative data analysis and, lastly, the qualitative results from the discussion group transcripts.

Sample Demographics

Table 2 below breaks out key demographics of the sample (n= 64).

Table 2: Demographics of the Sample

Demographic Factor	Percentages
<i>Village</i>	
Sentema	46.8%
Katiti	53.2%
<i>Tribe or Country of Origin</i>	
Baganda (tribe)	81.3%
Other Ugandan Tribes	9.1%
Other Countries (Rwanda and Burundi)	9.1%
<i>Religion</i>	
Catholic	42.9%
Protestant	38.1%
Muslim	19%
<i>Marital Status</i>	
Married	56.3%
Single	10.9%
Separated/Divorced/Married but lives separately	20.3%
Widowed	12.5%
<i>Mean Age</i>	36.9 years

Median Age	33.5 years
Standard Deviation of Age	13.75
Age (Using Categorical Variables)	
Ages 18-33	50%
Ages 34-49	31.3%
Ages 50+	18.8%
Average Number of Children (Living)	4.43
Mean Education Level	6.68 years (Primary 6-Primary 7/Secondary 1)
Education Level (Using Categorical Variables)⁶	
No education	6.3%
Grade 1 through Grade 6 (primary school)	29.7%
Educated above Grade 6 (secondary school and above)	64.1%
Occupation	
Unemployed/Housewife	14.5%
Farmer	62.9%
Otherwise Self-Employed	22.6%
Earns Income?	
Yes	80.3%
No	19.7%
Gender of the Head of the Household	
Male Head of the Household (MHH)	59.4%
Female Head of the Household (FHH)	40.6%
The Head of the Household's Relationship to Participant	
Self	33.3%
Husband	54%
Mother	4.8%
Father	3.2%
Other (Sibling, Grandparent, etc.)	4.8%
Head of the Household's Occupation⁷	
Farmer	39.1%
Otherwise Self-Employed	60.9%

⁶ It is important to reiterate that due to changes in the education system in Uganda, some women attended primary school up to the grade level of 7. These individuals were coded along with the secondary level students for the purposes of statistical analysis.

⁷ If the participant was the head of the household, their occupation as not included in the table above.

The mean age of study participants was 36.9 ± 13.75 years old. More than 92% were mothers and the average number of living children that participants had was 4.43 ± 2.68 . Nearly 81% of these village residents self-identified as a Muganda (i.e. belonging to the Baganda tribe). In addition, the following other tribes were represented by the study sample: Basoga, Banyoro, Bankozo, Bunyoro and Banyankole. Approximately 9.14% of the study participants were from outside of the country, reporting national ties to Rwanda and the Republic of Burundi.

Religious affiliations were mixed, with 43% of participants identifying as Catholic, 38% as Protestants and 19% as Muslim. Protestant participants identified as a member of varying faiths including Pentecostal, Born Again, and Anglicans. The author observed that while faith seemed to be important part of self-identity to the Ugandans she met, that people from different backgrounds seemed to practice and socialize freely with other religious groups with minimal friction. Marital status was similarly diverse: 56 % were married, 20% separated or divorced, 11% widowed and 13% single. More than 80% of participants reported earning their own income. More than 60% of women identified as farmers, while another 21.8% reported various occupations such as saloon keeper, tailor, shop attendant, craft-maker, hair dresser, teacher or holder of multiple jobs. Another 14% of the sample identified as unemployed or housewives. Additionally, when given the option to sign their names or stamp their thumbprints on the consent form 12% chose to give their thumbprint which strongly suggests that these women were illiterate.

Most pertinently to this study, when asked about sex of the person who was the head of the household, more than 59% of the women surveyed reported a male. The

majority of these male heads of household were husbands, but three women lived with other male family members were included in the MHHs category as well.

Quantitative Results

Dietary Intake Results

Most pertinent to the research questions are the food security and dietary diversity scores of the sample. The HFIAS and HDDS means and medians are outlined in Table 3 below. This table also includes breakdowns by categorical variables of food security and dietary diversity based on pre-determined factors.

Table 3: Household Food Insecurity Access Scale (HFIAS) and Household Dietary Diversity Score (HDDS)

<i>Mean Household Food Insecurity Access Scale (HFIAS)</i>	9.29 ± 5.9
<i>Median HFIAS</i>	8
<i>HFIAS (Categorical)</i>	
Food Secure to Mildly Food Insecure (= ≤ 6)	42.2%
Moderately Food Insecure (= 7 to 13)	32.8%
Severely Food Insecure (= ≥14)	25%
<i>Mean Household Dietary Diversity Score (HDDS)</i>	6.4 ± 1.7
<i>Median HDDS</i>	7
<i>HDDS (Categorical)</i>	
Low Dietary Diversity Score (0-3)	4.8%
Medium Dietary Diversity Score (4-5)	25.4%
High Dietary Diversity Score (6-14)	69.8%

The bar chart in Figure 5 below demonstrates the percentage of participants who ate from various food groups, based upon the loosely defined food groups provided by HDDS tool. The percentages below represent the number of participants who reported consuming a food within the last 24 hours that fell into one of the below 14 categories:

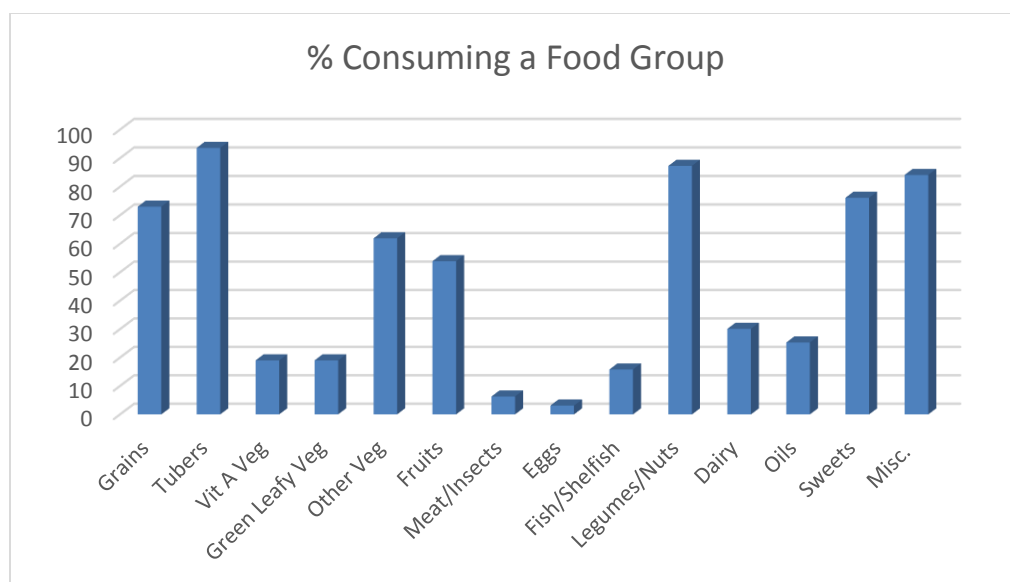


Figure 5: Food Group Categories Consumed

Notably, few participants reported eating meat (6.3%) or eggs (3.1%). Less than a quarter of participants had reported eating fish (15.8%), vitamin A-rich vegetables (19%), and green leafy vegetables (19%). Tubers were the most frequently consumed category (93.6%). The most common tubers consumed were cassava and sweet potatoes. The second largest category legumes and nuts (87.3%) were comprised of groundnuts (prepared as a sauce, roasted, raw or in a stew) and beans. The third most common group was the miscellaneous category (84%) which was made up almost entirely by the consumption of tea. Grains and cereals were also consumed by 73% of participants.

When asked directly, all participants (96.9%) reported that they understood the important role of dietary diversity in impacting health. This important concept has been emphasized in their Bega Kwa Bega nutrition education classes taught by Musubika.

Household Food Insecurity Access Scale (HFIAS) Results by Question

In Table 4, the author provides breakdown of the percentage of positive replies for the nine HFIAS questions by all respondents. In addition, the author broke out positive responses for those living in FHHs verses MHHs for the sake of comparison. This information provides a snapshot of percent of households that experienced this food security related condition during the recall period which was during the past month:

Table 4: HFIAS Answers Broken Out By MHH and FHH

HFIAS Question	Percent of Positive Responses by All Respondents (includes rarely, sometimes or often)	Percent of Positive Responses by Respondents Living in FHHs (includes rarely, sometimes or often)	Percent of Positive Responses by Respondents Living in MHHs (includes rarely, sometimes or often)
In the past four weeks did you....			
1. Did you worry or have anxiety that your household would not have enough food?	54%	54%	54%
2. Were you or any household member not able to eat the kinds of foods you preferred because of a lack of resources?	79%	77%	81%
3. Did you or any household member have to eat a limited variety of foods (less kinds of food on the plate) due to a lack of resources?	63%	61.5%	65%
4. Did you or any household member have to eat some foods that you really did not want to	90%	92%	89%

eat because of a lack of resources to obtain other types of food?			
5. Did you or any household member have to eat a smaller meal than you felt you needed because there was not enough food?	46%	50%	43%
6. Did you or any other household member have to eat fewer meals in a day?	35%	31%	38%
7. Was there ever no food (of any kind) to eat in your household?	43%	38%	46%
8. Did you or any household member go to sleep at night hungry?	8%	4%	11%
9. Did you or any household member go a whole day and night without having eaten anything?	5%	0%	8%

Hunger would appear, for the most part, less of the daily experience during that month (<10%). However, more than 50% of participants still experienced anxiety about whether their household would have enough food. More than three quarters of participants had to do without preferred foods and ate foods they didn't want to eat because of a lack of resources. An alarming 43% mentioned that there was at least one time within the last month where there was no food in the household. Roughly a third to one half of participants had to reduce the amount of foods that they ate or the amount of meals due to economic constraints. Paired with the mean HFIAS score, the author interprets the data above suggests a moderately food insecure environment.

Association Between Demographics Factors and Diet

The results below in Table 5 show whether the gender of the head of the household influenced the HFIAS and the HDDS scores:

Table 5: Gender of the Head of the Household and Diet (HFIAS and HDDS Score)

	Gender of Head of the Household	N	Mean	Std. Deviation	Sig.
HFIAS	Female Head of Household (FHH)	26	8.54	5.202	.399
	Male Head of Household (MHH)	38	9.82	6.350	
HDDS	FHH	26	6.50	1.794	.691
	MHH	37	6.32	1.668	

Based on these results, the author concluded that the gender of the head of the household did *not* significantly influence dietary diversity or household food security in the study population.

The author also explored whether any of the demographic factors (religion, village, tribe or country, marital status, the number of living children, education level or whether or not they earned income) would influence the participants' HDDS and HFIAS scores in a statistically significant way. The findings are outlined in Table 6 below.

Table 6: Association Between Select Demographic Factors and Diet

Demographic Factor	Description	HDDS				HFIAS			
		N	Mean	SD	Sig.	N	Mean	SD	Sig.
Village	Sentema	30	6.53	2.05	.558	30	7.73	5.75	.046
	Katiti	33	6.27	1.35		34	10.68	5.76	
Income-earning	Yes	48	6.6	1.62	.115	49	8.53	5.7	.500
	No	12	6.25	1.63		12	11.5	6.04	
Religion	Catholic	27	6.73	1.64	.267	27	10.11	6.15	.703
	Protestant	24	6.38	1.81		24	8.79	5.68	
	Muslim	12	5.75	1.65		12	8.92	6.14	
Tribe/Country	Buganda	52	6.41	1.69	.241	52	8.54	5.55	.094
	Other Ugandan tribes	6	7.16	1.72		6	12.0	7.23	
	International	6	5.5	1.64		6	13.16	6.24	
Number of Children	0-11	63	6.39	2.68	.462	64	9.29	2.68	.653
Education Level	None	4	6.25		.263	4	10.0		.069
	Grade 1 - Grade 6	19	6.52			19	11.37		
	> than grade 6	41	6.35			41	8.27		
Marital Status	Married	35	6.31	1.71	.929	36	9.89	6.19	.929
	Single	7	6.71	1.79		7	6.43	3.73	
	Separated/Divorced	13	6.54	1.94		13	8.38	5.43	
	Widowed	8	6.25	1.48		8	10.63	6.71	

Most notably, there is a statistically significant difference between the villages and the HFIAS score ($p = .046$). No statistical significance was found between village and dietary diversity scores. Income earners' mean HDDS and mean HFIAS were not significantly different from that of non-income earners. The mean HDDS and HFIAS were not significantly different among groups based upon religion, marital status, tribe or country, the number of living children, or by education level.

Qualitative Results

Below are the qualitative results which have been grouped by the following key themes: agricultural production, income generation and utilization, food consumption, household labor distribution, and body size ideals and its potential impact on food choices.

Agricultural Production: Crops, Storage and Livestock Production

The majority (62.9%) of women identified their occupations as farmers, growing crops both for the family's consumption as well as selling a source of income. As one participant said, "I sell some of my produce like cassava to middlemen or to my neighbors when they are in need, but I also eat part of the harvest." However, it is important to note that even those whose livelihood did not depend primarily upon farming or livestock management were very likely to participate in some small-scale agricultural pursuits either to contribute to the food supply or to sell on the side.

Who owned the land that participants farmed on was not asked during the discussion group or interviews, and this subject did arise during the discussion group conversations. The majority of the participants reported that they owned or managed some form of livestock animals although the types of animals were not mentioned. However, when the author asked what times of livestock were common in the villages, the Farm Manager Kamoga answered that beef and dairy cattle, goats, poultry, sheep, and pigs were managed at both intensive and semi-intensive scales. Participants reported that some animal products were consumed in the home such as milk and meat. In addition, a few women mentioned selling livestock products like eggs and meat for income. Manure, once a free byproduct of livestock keeping, was now sold or purchased as a nutrient source for fertilizer.

In some cases, animals were maintained as household property (e.g. owned communally and used to benefit the entire family). In the majority of cases, however, women spoke about their animals as personal property with which they had sole responsibility of and total decision-making power over. One participant said “most of us have livestock but they belong to us, not to our husbands.” Regardless of whether the animals were owned by the individual or to the greater household, the participants claimed to do the majority of the daily chores to maintain the livestock. As one woman put it, “if the animal is the husband’s, we still look after them ourselves.”

Participants grew staple crops such as sweet potatoes, cassava, yams, maize, pumpkins and Irish potatoes. Plant proteins such as beans, groundnuts, soy beans, and cowpeas were also frequently harvested. Some other vegetable crops that participants

reported that they grew included *endagu* (a type of yams), greens, *sukuma wiki* (Swahili name for a type of East African kale), bitter tomatoes, cabbage, carrots, *empindi* (a type of beans) and eggplant.

The women employed several low-technology food storage and preservation methods. Starches, as the staple foods, got the most attention due to their importance in the diet. Several participants reported that they used granaries for maize, although one participant said this practice had been phased out a long time ago. Women frequently used sacks to store foods for safekeeping. One woman reported that she used the following technique to store foods: “one can also get some wooden planks and place maize in a sack and place these sacks on the racks to prevent the insects from getting to the maize.” Irish potatoes were commonly spread on the ground so that they remained fresh longer. Cassava was dried in the sun and then ground into flour. All of the discussion groups reported the same treatment to preserve beans. As one woman reported; “if we harvest beans, we dry them well, we can place them in a sack and add pepper and ash to prevent the insects and once in a while place them in the sun.” Several times participants mentioned the method of adding ash to stored crops to discourage insects from eating the food.

Income Generation and Utilization: Income Sources, Marketing Issues, and Associated Decisions

The vast majority (80.3%) of women surveyed reported earning their own income. Approximately 14% considered themselves unemployed. Roughly 22.6%

women ran small businesses; examples included a transportation business and the selling of chapati. Another woman kept a saloon during the Christmas holidays. Livestock was also a common source of income and the majority of women retained the money they earned from their animals. One participant said: “I take care of my own livestock. When I sell, the money is mine and I [use it to] look after my children and myself.” This practice was echoed by another participant who said “I look after my own livestock because I know [that] when I sell it the money is mine.” One reason that many participants preferred to handle the income derived from their livestock animals was explained by a participant thusly:

The problem is [that] there are men who are difficult. They will sell the animals and not spend it on the family. You also want the children to dress as well as your neighbors. So you get your own livestock so that when you sell it you can use it on your children.

A fear or belief that money in the hands of husbands would not be spent on the family was a pervasive theme across discussion groups.

For the most part, women made money choices for their households or at least for themselves. As one woman reported, when it came to financial decisions in her household, “I decide for myself.” In most cases, income appeared to be earned and spent separately as individuals. According to the responses gathered, the majority of the household purchasing decisions were made by the woman of the household. As one woman explained, “even if the husband gives you the money, it is you who decides what to do with it.” Another echoed this independent sentiment saying “I go and sell my food or other items and purchase whatever I want.” A few participants conveyed that they

made financial or purchasing decisions in partnership with their spouse, although these women were in the minority of responses.

While not a universal point of view, the strong majority of participants reported considering men untrustworthy when it came to money matters. For example, one woman said that “[men] only know how to grab the money from you.” Underlying some of the responses were references to a more oppressive past when husbands controlled household finances or took income away from their wives. One participant said “how can he take the money from me? That ended long time ago. We now make our own money and decisions.” While the majority claimed to make and spend their own income, a few women reported that the men in their lives took a piece of, or controlled the majority of, the money the women made. One woman gave an example to illustrate how income might be divided. If she were to grow tomatoes and give them to her husband to sell, he would bring back a portion of the money to her. The other portion of the income he spent the way that he wanted. She did not report any feelings on this arrangement.

Central to the financial distrust appeared to be concern about their husbands’ infidelities, which were considered common in the community. These extramarital affairs were considered by some participants as a drain on resources and another reason for women to protect their money:

Participant #1: The habit of giving the money to the husband is no longer done. When you give it to the husband he uses it on another woman so you only help him to enjoy himself.

Participant #2: Sometimes you can plan to buy something, so you can inform him what you have done with the money like paying school fees but not giving it to him.

Ndahura: So you fear giving him the money?

Participant #3: It's not just fear. Men are not easy to deal with. He will use the money on the other women and not even give you anything.

Ndahura: So you see the other ladies passing by and it is your money making them look good?

Participant #4: Of course it is our money.

In the past, polygamy was considered a common practice, but this was changing as more men were looking for sexual or romantic relations on the side of their marriages without commitment or responsibility. One woman implied that the slowdown of polygamy was detrimental to the village: “men of long ago used to marry many women so it was not a problem.”

Husbands were not the only males that the participants reported that they distrusted. For the nearly two-thirds of participants who considered farming their occupation, a lack of time, long-term safe food storage, or transportation options led to the necessity of selling to agricultural middlemen. Middlemen drastically undercut the prices of crops which helped keep these farmers in a cycle of continuous poverty. As one woman explained, “they [the middlemen] can buy the maize at 200 [Ugandan Shillings (UGX)] a kilo but they can sell it for 800 [UGX] and when you go to buy flour from the shop you pay about 1000 [UGX] a kilo for the maize flour.” One woman said that in the past she took her crops to sell at a big market in Kampala but did not provide a reason for why she stopped. The need for a local market was repeated many times by every group. One participant said: “the middlemen come here and buy our crops but they give us very little money. It would be better if we could sell it directly to the consumers.” The women said that opportunities to sell goods directly to consumers were limited.

The need to sell to middlemen directly after harvests was further intensified by the lack of long-term storage methods. Poor storage practices may lead to microorganism, vermin or pest contamination which may damage or discolored the produce, rendering products unsellable (Costa 2014). As one woman pleaded “we would also like you to kindly help us identify a market for our food crops. The middlemen really oppress us and give us low prices, and at that time you have a lot of food which will go bad so you end up selling it.” This evidence suggests a strong desire on the part of these women to take control of their negotiation power and marketing but a general uncertainty on how this could best be organized or accomplished.

What food was purchased outside of the home varied. Some women claimed not to purchase any food and grew all of their own sustenance. A few purchased from little shops or kiosks in the area. The market was far for some participants, so many chose to buy produce directly from their neighbors: “if I want to buy food because I do not have it, I go to the neighbors who have it and I buy it straight from the garden.” Meat was rarely purchased. One woman claimed that she only ate meat at Christmas and New Year, although it is unclear whether this was common or not. Foods frequently purchased included *matoke*, maize, silverfish, Irish potatoes, cow peas, soya flour, beans, groundnuts, rice and some vegetables.

Food Consumption: Choices, Quality and Distribution

All but one, or 96.8%, of the participants agreed with the statement “Do you think it is healthy to eat a variety of different foods?” When asked during the discussion group

what foods were most nutritious for people to eat, participants identified the following foods: *posho* (ground maize), pumpkin, silver fish, beans such as soybeans, green vegetables, peas, millet and Irish potatoes. When asked whether there were foods that women or children should not eat, the participants responded “that [taboos] used to happen a long time ago,” but that now they “all ate the same thing.” When Ndahura asked the group about whether the historical taboo prohibiting women from eating chickens and eggs was still in practice, one woman replied: “no, the ladies have to eat; they [men] used to eat chicken and now it is our turn to eat.” Several women cited eggs to be particularly healthy for women to eat. Another participant said “we just eat everything.” However, it is worth noting that during the dietary recall, only 3.1% of participants reported consuming egg and 6.3% consuming meat.

When asked about favorite foods, women varied in their responses, but most were focused on starch and protein-rich items. The majority mentioned *matoke* with a side dish of beans, groundnut sauce, meat or silverfish. *Posho* and beans and *katoga* (a mixture of cassava and beans) were also mentioned as favorites. Participants reported feeling pride in their cooking when they were asked, replying that they were all excellent cooks. As one woman described how she made the classic Ugandan dish: “we like cooking *matoke*. We prepare it in banana leaves and steam it very well, we can cook it with groundnuts and enjoy it well.” Women flavored their foods by a multitude of methods and additives. Boiling or steaming were still the predominant cooking practices; however, participants also mentioned slow cooking, frying and roasting in an aluminum airtight container as methods they used to improve food palatability. In addition, flavoring agents such as

bitter tomatoes, onions, *roiko* (a local type of curry powder), and other vegetables were also used. As one woman described:

I don't add oil to my food if I want it to taste nice. I pound my groundnuts very well, prepare my greens and steam my groundnut sauce over food the one who has fried her sauce cannot come close. I add the tomatoes, and I never miss the onions, and I cook it very well, the one seated on the table can really enjoy it.

The author observed that nearly all foods, with the exception perhaps of chapati (a type of Indian bread that remains popular in Uganda), was made with very little oil and that the vast majority of foods were steamed or boiled.

When directly asked about nutrition during pregnancy and lactation, the participants, on the whole, did perceive some nutrition needs for different parts of the lifecycle. For pregnancy, all of the groups agreed that fish was an important dietary component. Pumpkins and groundnuts were also mentioned along with various starches and fruits. In one group, eggs were suggested as a healthy food for expectant mothers to eat. However, many thought that pregnancy did not have any food restrictions. As one participant put it "they (pregnant women) should eat every sort of food so as to have proper growth for the child." This statement reinforces the idea that the majority of the women were knowledgeable about the importance of nutritional variety.

When asked about best foods for breastfeeding, opinions varied significantly. The majority of responses discussed how to increase milk production through enriched foods. All groups seemed to agree that a porridge made with milk would result in increased lactation; one woman gave her version of the recipe: "there is a porridge that is made of soya beans, silverfish, millet, *dodo* and if you add an egg it is very good for milk

production.” Another common belief was that hot liquids were important dietary component during lactation, especial fish or bean soups. As one participant said, “they [breastfeeding mothers] have to drink hot drinks or soups.” Bitter tomatoes and fish were also mentioned multiple times, in addition to a wide variety of other foods. Some other ideas are worth repeating, although they only reflect the experience of the speaker. One woman gave her personal recipe for breastfeeding:

There are some greens that work like cassava leaves, these are pounded and boiled in water one can add dry fish, tomatoes and boil together. This really makes one get a lot of milk. You eat it like a sauce.

Another participant claimed that *mukomboti*, an alcoholic drink made out of maize, was useful to increase lactation.

Participant responses varied when they were asked about who was served first in their household. In some households, everyone ate at the same time. In other cases, men would be served first, followed by children and then the women would eat last. In a few cases, children were served before fathers. One woman said “I think it is the women who eat first.” Another woman said that she ate whatever remained in the sauce pan after everyone else was satiated. One woman reported: “we serve at the same time. You place the man’s food on the table while you eat with the children on the mat.” These seating arrangements may have been common; the author observed that women and children in Katiti and Sentema sat on woven *mukeka* while men typically sat on chairs.

Quite a few participants mentioned that men often ate outside of the home, or kept infrequent hours and therefore were served at a different time than the rest of the family. As one woman put it “the men are hardly at home to eat the meals we cook.” Another

participant mentioned that their spouse sometimes was too drunk to eat. Alcohol abuse on the part of husbands was brought up a few times during the discussion groups as a common, if not an entirely universal, frustration.

Participants' personal experience of household food distribution seemed to vary significantly. A slight majority of participants claimed that women ate the largest proportion of food; some others said the men consumed the greatest amount, and a few others reported that their children ate the most. One woman said: "in my opinion it is hard to give a man food until he is satisfied when the children are not satisfied." One topic that went largely undiscussed was the whether anyone in the household received preferential treatment during meal time (i.e. choicest cuts of meat); however, it is worth reporting that one woman mentioned that "we give the husbands the best part of the fish; they do not like eating the fish head." Whether offering their husbands preference for the best parts of food was a common practice among participants or not is unknown.

According to the responses, there consistently appeared to be no difference in how or what girl and boy children were fed. As one participant said "they all eat what is available, there is no segregation," but she did not indicate whether her children received similar proportions of food. In some instances, participants mentioned that their boy children were hungrier and therefore got a larger proportion during mealtimes. Male and female children were also fed at the same times in all but one case. However, children might be fed at different times based upon their ages; one woman responded: "if you first serve the older ones it is wrong because the older ones can endure for longer when hungry."

Workload and Labor Distribution

Nearly every participant seemed to agree on one thing: women did the majority of the work in the household. Multiple participants suggested that women did *all* of the work; for example, one woman claimed that “men nowadays do not work.” Another seemed to agree with this sentiment stating “all the work in the house is done by the women.” Women claimed to wash dishes, clean the house, do the laundry, till their land, and take care of the children. Many women also farmed or kept small businesses on the side. A common theme was that an overwhelming burden of the entire households’ livelihood rested squarely upon the woman’s shoulders. One woman said, “the men do not contribute anything in the home, even when it comes to paying school fees for the children. We do everything, even dressing of the children. We have to think about it.”

Another woman clarified:

Let us get it right, we are not saying that men don’t work but [that] their work is less than ours. Because in the morning the woman can cook tea, he gets up and takes breakfast then you both go to the farm, when you return you the woman have to return with firewood, a child on the back and food to cook for lunch. You then cook more tea which he drinks with the children, in the interim you prepare lunch and eat it together. After which you both go back to the farm and his day is done, when you return you have to prepare supper but first boil his bathing water after which he goes to visit his friends. You, the woman, remain bathing the children and washing the children’s clothes. So we are not saying the men do not work, but their work is less but the women have more responsibilities.

Even when men worked, many women complained that men were lazy and rested more than women.

According to the participants, the occupations of the male heads of the households varied; roughly 39.1% of the male heads farmed as their primary source of income. The other 60.9% were employed in roles such as a mason/bricklayer, boda boda driver, builder, laborer, mechanic, teacher, alcohol brewer, and prison officer.⁸ However, according to the women surveyed, a husband's earnings did not necessarily benefit the larger household. One woman said "some [men] farm but it is not for the family, it is for their personal use." Another added, "the men make their own money. They can grow fruits and sell them and uses the money as he wants. Some can go away for a week. Some go drinking the whole time." Again, alcohol abuse among husbands was brought up multiple times. However, one woman disagreed "not all the men go drinking. Some do care. They pay school fees and dress them [the children]." Another woman admitted that it was true that some men contributed their income to benefit their wives and children, but noted that those kind of men were few and far in between. Another woman chimed in, saying "they (men) do not plan to use their money for the family. They just spend their money on other women and like making their wives pregnant." Since polygamy was still a relatively common practice in the village, it was unclear whether the speaker was suggesting that the "other women" in question were sister/co-wives or if they were referring to mistresses that the husbands kept on the side.

⁸ Boda bodas are small moped taxis common in Uganda.

Body Image and Food Choices

Women were also asked a range of questions about body size and image.

Seemingly universally, the participants agreed that a larger body size was not ideal, citing that an excessive fat was neither portable nor comfortable. When Ndahura asked about large women with wide hips, one woman responded: “that is for those in the town, but here in the village those hips cannot work in the garden.” With the exception of one participant in the study, a thin body type was not prized in Wakiso as it is often in the west. “That is not nice, people even [will] think you are sick,” said one woman when asked about a lean body type. For some in the culture, there may be an association with thin bodies and illnesses such as HIV/AIDS (Janzon, Namusaazi & Bolmsjö 2015). A medium body type (not too large, nor too thin) with curves was cited as ideal. Preference for a proportionally larger bust or hips varied, but the majority agreed with the sentiment that “a good figure is one who is small on the upper side and then gets bigger in the lower side [hips].”

What participants believed men preferred varied considerably and no consensus was reached. Most believed that each man had their own preferred body type. Some said men liked small women, others bigger women, some favored medium size and two women claimed “men love you as you are.” Another one complained that “even if the women at home are good ones who are beautiful, they [men] still pick on any woman they find.” Another participant said that good manners and housekeeping were what was required to keep a man happy. One respondent talked about how body shape may change after marriage:

Sometimes you leave your father's house when you are looking very good. But when you come to your husband's, because of the situation, you start losing a lot of weight and look bad.

The participant did not explain what she meant by "the situation."

When asked about how their ideas of body shape and beauty influenced their food choices, only one participant said that she made dietary decisions in order to change or manage her body shape. However, this individual did not indicate whether we wanted to lose, gain or maintain her weight. The rest did not appear to correlate the foods they ate with their shape; as one woman put it "we do not think about the figure we have and we do not diet." Many said they could not gain weight even if they wanted to. One participant said "our bodies just happen as they are we do not intentionally try to get them into a certain shape or size." The majority said that they ate what was available. When food was accessible, participants ate what they liked until they were full. Given the hard nature of farming, another woman said "the work we do does not allow us to grow very fat, so it is not intentional how we look." Another woman agreed to this sentiment saying "someone who goes in the morning and goes to farm cannot consider how her figure looks. She will sit down and eat food as much as she wants." Yet another participant said: "we work very hard and this work is what makes us get the figure we have."

CHAPTER FIVE: DISCUSSION

The author designed the research questions in order to capture results that would yield a better understanding of the complex relationship between household gender inequalities, food security and dietary diversity status in the lives of women in Katiti and Sentema. In the introduction, the author stated a desire to design a mixed methods study to capture data on how, when and why household gender inequalities influenced participants' ability to procure and consume nutritious foods. To reiterate, the primary research aim of the study was to assess the role of gender on food security and dietary diversity and further examine ways in which gender inequalities influence the participants' diets.

Due to a small sample size, it was unclear whether the gender of the head of the household or other demographic factors influenced HFIAS or HDDS results. However, some important contributors to food insecurity emerged in the qualitative responses that echoed other studies. For example, all of the discussion groups complained about the necessity of selling to middlemen due to a lack of access to markets, which was clearly one of the more universal issues (Komwa 2011). Multiple women discussed their husband's alcohol abuse and infidelities as barriers to economic stability (Kerr 2005; Kes, Jacobs & Namy 2011). Furthermore, the Wakiso women talked about the burden of being independently responsible for the majority of food securing activities for the

household (Hyder et al. 2005). The women reported that they performed a disproportionate portion of the household labor, which was consistent with other literature on the topic (Komwa 2011; McCann 2009; FOWODE 2012). Indeed, the vast majority of the participants would most likely agree with the statement that “women have the prime responsibility for domestic duties and food production while men spend time on productive activities or at leisure” (FOWODE 2012). This responsibility of providing for themselves and their families was heavy and many responses reflected bitterness towards the males in their lives for not helping to shoulder the burden.

Another finding from the qualitative data was that the majority of women were fiercely independent in their financial lives. Not only did most of the participants earn their own source of income, they also made the bulk of the purchasing decisions for their households. In addition to farming, many of the participants owned their own livestock or small business enterprises. Women reported a great deal of distrust towards husbands, particularly around financial matters. Men were commonly thought to be selfish in their purchasing decisions, making choices that benefited them rather than their family members. A commonly expressed fear was that their husbands might spend their income to support their infidelities or to abuse alcohol instead of feeding or clothing their children. Therefore, many women reported that they chose to keep their incomes separate from their spouses.

The dietary diversity results of the study sample were promising when compared to another dietary diversity study of women living with HIV in Eastern Uganda (Bukusuba, Kikafunda, & Whitehead 2010). Using similar but not identical food groups

and methodology to quantify dietary diversity, Bukusuba, Kikafunda, & Whitehead 2010 found that only 39.8% of these women ate six or more food groups per day (Bukusuba, Kikafunda, & Whitehead 2010). In comparison, 95.2% of this study's participants were categorized as having "moderate" to "highly" diverse diets. Yet these encouraging dietary diversity scores may be somewhat misleading if taken purely at face value. For example, in spite of the participants' appreciation for dietary diversity, there were significant gaps in the categories of food groups consumed in the dietary recall data. If the results were indeed reflective of daily consumption patterns, the author anticipated the potential for nutritional deficiencies. The 24 hour recall data demonstrates that participants followed the core-fringe-legume meal pattern, which matches food studies literature regarding dietary practices in sub-Saharan Africa (Mintz & Schlettwein-Gsell 2001). Based upon current research, it is no surprise that starchy staples, tubers and legumes made up the majority of the diets of the women surveyed (Kiremire, Musinguzi, Kikafunda & Lukwago 2011). Meat and eggs were rarely consumed; vitamin A rich and leafy green vegetables and fish were less often consumed. This data suggests a low consumption of iron, protein, omega 3 fatty acids, vitamin A, vitamin B12, vitamin C and calcium all of which are essential for healthy growth and wellbeing. The author also found that 84% of the participants reported drinking tea in their dietary recall, which could reduce iron absorption due to present tannins if the tea is consumed at the same time as meals (Kaltwasser et al. 1998). Based on observations in the field, the author speculates that most likely reasons that animal products and vegetables were less consumed was that these foods are more expensive and more prone to spoil over starches, fruits or tubers.

The qualitative responses confirmed that the majority of women's dietary choices did not appear to be influenced by ingrained gender norms. Women testified that no kinds of foods were restricted to a specific gender group and that they were free to eat the foods they chose. Participants seemed to regard traditional taboos as antiquated notions of the recent past. This challenged the assumptions of the author as it contradicted some evidence in the food studies literature (Osseo-Asare 2005; Byaruhanga & Opedum 2008). If the diversity of these women's diets were limited, it would therefore be more likely due to either economic constraints or taste preferences.

Food choices were not influenced by a body image ideal. The responses from the body image ideal questions differed from a qualitative study of 40-something women who had immigrated to Kampala from villages within the last decade (Janzon, Namusaazi & Bolmsjö 2015). Their sample also did not engage in weight-control measures such as diet or exercise, and that slenderness was associated with illnesses (particularly HIV/AIDS), poverty, and reduced opportunities for marriage. A key difference between these studies, however, was that obese and overweight bodies were considered to be more erotic and attractive in the Kampala group (Janzon, Namusaazi & Bolmsjö 2015). By contrast, the women of Sentema and Katiti had a clear preference for medium-sized bodies, although this preference did not influence their consumption patterns. It will be interesting to observe whether this changes if increased economic opportunities were to lead to a nutrition transition where more women become susceptible to obesity and related non-communicable chronic diseases.

Limitations

The study design had limitations; most notably, the sample size (n= 64) was too small to have statistical power. However, it is possible that a larger sample size may not have changed the outcomes. This smaller sample was chosen as the study was planned to be a primarily a qualitative study with quantitative data include as a supplement.

As noted in Chapter 3, the recruitment process was also a constriction. Women were enlisted for the study through Bega Kwa Bega's village connections by council members; therefore, the sample was not randomized. There is a strong possibility of bias in the selection by council members, especially if they chose their friends or family members to participate. In addition 15 women outside of the original age group (3 under the age of 18; 12 over the age of 49) took part in the study. While the minors were removed from the data, the older women's discussion group responses may have influenced the qualitative results. It is unknown how these recruitment limitations may have influenced the data collected. However this convenient sample could have resulted in a picture of women more to be more food secure and knowledgeable about nutrition than a random sample might have generated.

Therefore, the results may not be generalizable to all rural women living in central Uganda as the demographics of the Katiti and Sentema women surveyed contained key differences from those found in the official Ugandan census statistical reports. For example, although specific data on income was not collected, participants appeared to be more economically independent than many Ugandan women, as evidenced by the fact that 80.3% earned their own money. According to *Gender and Productivity Survey*:

Analytical Report, 49.4% of Ugandan women working were unpaid laborers (UBOS 2009).

Furthermore, the sample was also more educated than the majority of females in the country. For example, in 2011 the percentage of Ugandan women who were uneducated was 12.9%, 59.4% have attended primary school, and 27.7% attended secondary school and above (UBOS 2011). In contrast only 6.3% of the study sample were uneducated, 29.7% was educated through primary school, and 64.1% made to secondary school and above. Specific data was not collected about literacy; however, 12% of the sample chose to use an inked thumbprint for their signature on the consent form. While it is unlikely that the other 88% can be counted as fully literate, these signatures do lend support to the idea that these women were better educated than most. For contrast, the literacy rates for all Ugandan women were 66%, 62% for women living in rural areas, and 81% for women living in the Central region (UBOS 2010).

As Bega Kwa Bega Farm Manager Kamoga gently pointed out to the author very early in the data collection process, this study discusses gender but it only tells one side of the story. In this way, that the research design only sought to capture the views of women can be viewed as a limitation. A more inclusive study might have yielded richer insights and more accurate description of the issue from the viewpoints of both men and women in the Wakiso District.

Another limitation of study is common with those using one 24 hour dietary recall, which only gives a snap-shot of the diets in one day in time rather than a consistent, generalizable picture. Since data was collected in January of 2015, the

participants were enjoying their biannual post-harvest yields which may have given them an additional nutrition boost. Therefore, the respondents may have been more food secure than they would generally be during other times of the year.

Due to cost confines of the project, the author only had one translated transcript made. A second translation might have further validated the accurate translation of the qualitative responses. Therefore the author only relied on the word of one translator which potentially biased the results. Another constraint is that due to the unexpectedly high turnout, the discussion groups were much larger (n= 15 to 36) than expected. This could have made it difficult for more quiet individuals to offer their opinion. Therefore, the opinions captured are more likely to be those of the more bold community members which could influence the qualitative results.

It is also critical to note that highly successful interventions and programs initiated by Bega Kwa Bega in the two villages has helped dramatically improve food security and dietary diversity (Bambi Uganda Orphans 2014). In particular, the author suspects that the HFIAS scores and HDDS scores were influenced by the excellent technical work that Bega Kwa Bega staff had implemented in villages; namely through the weekly nutrition and agricultural education classes provided by Kamoga and Musubika in the village demonstration gardens (Bambi Uganda Orphans 2014). At many points in the discussion group and transcript the participants, quite unprompted, mentioned their gratitude for the program staff for all that they had done in the community. The author suspects that if the women surveyed appeared to be empowered and highly-resourceful, this may be attributed in large part to the programs that the Bega

Kwa Bega team had implemented in the Wakiso District. While this is not a limitation per se and certainly positive news, the research would have been strengthened by including other groups outside of Bega Kwa Bega's programmatic reach in the sample.

Unanswered Questions and Implications for Future Research

Future research would benefit from addressing the limitations of this study's methodology. Most notably, a larger, randomized sample size would have yielded potentially more pertinent quantitative results. Including men in the sample would help to confirm the study results or might display a new perspective on the issues presented by women in this study. Furthermore, holding smaller discussion groups and multiple translations of the qualitative results would add to the veracity of the outcomes.

Topics outside of the scope of this project could benefit from additional exploration as they are likely fit into the larger gender norm picture within central Uganda. For example, finding out who in the household owns land is an important detail and is likely to have added to the value of the study. Collecting data on gender and ownership in relation to food security would greatly strengthen analogous future research. Additionally, identifying and comparing those in polygamous marriages might have yielded interesting differences of experience. It was recently estimated that 24% of Ugandan men practiced polygamous marriage which is currently legal in the country though it remains controversial (UBOS 2006). Also, the author suspects that male alcohol use, domestic violence, and infidelities may also have an effect on household food security status. Future researchers might consider conducting one-on-one interviews to

discuss these sensitive topics, as some women may be uncomfortable discussing their private problems in a group setting.

Another area that would benefit from additional investigation is what crops women grew versus what men chose to grow. Common Ugandan cash crops such as coffee, tobacco, cotton and tea were not mentioned as crops participants cultivated (FAO 2003). The author did not get the opportunity to ask follow up questions about what crops male household members grew but, if they had, participants' responses might have demonstrated a potential area of contrast. For example, if men grew cash crops for selling and women grew staple crops for eating, this might lead to marked inequalities in income between men and women (FOWODE 2012). It might also lend evidence to the theory of gendered agricultural pursuits leading to income equalities. Further studies will have to investigate this line of inquiry to see if this influences food security in households.

Additional studies might include anthropometric assessments to evaluate nutrition status which might lend strength to the samples' HFIAS and HDDS results (Kadiyala & Rawat 2012). In order to add veracity to the data, additional dietary recalls and HFIAS surveys could have been conducted at another time of the year. For instance, a paired sample study that surveyed the same women on two different times of the year (post-harvest and pre-harvest) might paint a more accurate picture of dietary diversity and food security status over the year.

Implications for Future Technical Work and Policy Recommendations

Bega Kwa Bega already operates a number of highly effective technical projects in Sentema and Katiti. These programs include bore holes for clean water, a farm demonstration garden with nutrition education classes, and a mobile health clinic (Bambi Uganda Orphans 2014). Below the author will attempt to suggest some additional possible programmatic interventions that could help address the stated concerns of the participants. In addition, the author recommends a policy change that may have the potential to promote food security for farmers in districts throughout the country.

The author suggests that behavioral change campaign might be an effective way to change attitudes among males in order to “promote a more balanced division of labor within the household” (Hyder et al. 2005). For example, social behavioral change communication efforts, especially if delivered via radio, can be an effective method of changing behavior (Crystal 2009). In addition, this targeted communications campaign could encourage men to support improved eating practices among their wives and children might help bolster household nutrition status while countering sexist cultural attitudes.

In spite of the encouraging diet diversity scores, the participants still have a long way to go to increase the nutrient density of their diets. Perhaps the most effective way to promote knowledge-sharing around dietary diversity best practices is to facilitate discussion. To illustrate, a recent pilot of an intergenerational Agriculture and Nutrition Discussion Group (ANDG) model in Malawi has shown promise in leading to positive behavior change (Satzinger, Kerr & Shumba 2009). In this project, a group of

smallholder farmers were led in a problem solving discussion around strategies to combat child malnutrition (Satzinger, Kerr & Shumba 2009). The authors found that this type of “idea exchange” can be valuable and potentially more effective for nutrition interventions than top-down health education model:

Respondents reported that this knowledge exchange approach also enabled them to more easily relate to what is discussed than if the particular messages are taught by an “expert.” They noted that the ANDGs were a good source of new ideas and suggestions for many facets of their lives. (Satzinger, Kerr & Shumba 2009, pg 377).

Based upon personal observation, the author suspects that Uganda is particularly ideal culture for this type of intervention pilot because respecting elders is an important cultural value. The promoting of indigenous best practices of improving diets and livelihoods as a more culturally appropriate method of improving health behaviors is a new trend in health science worthy of additional exploration (Ibnouf 2009).

During the discussion group, when asked directly about what other projects they would find valuable, participants reported the following needs in the community: creating more bore holes, helping transport children to school, classes on financial management, and training on how to make handicrafts. Not surprisingly however, the number one desire was for a market to sell goods directly to consumers to avoid having to sell to an agricultural middleman who appeared to have a monopoly in the region. While Bega Kwa Bega’s Farm Manager Kamoga has undoubtedly helped teach the Wakiso women how to increase their crop yields using indigenous or organic methods, the participants may remain food insecure if they cannot sell these improved yields at a fair price.

While the participants identified the cause of the middlemen problem as a lack of markets, the author suspected that a lack of transportation and long-term storage methods were equally to blame. A potential related opportunity for improvement, not identified by the participants, was investing in low-cost technologies and training to improve storage practices. The participants reported a number of traditional ways of preserving or storing foods post-harvest, undoubtedly passed down through generations. Naturally, these preservation efforts were devoted to storing foods of highest priority: grains, tubers and legumes that make up the majority of the Ugandan's calorie consumption. For the proportion of crops sold for an income however, these products may have to be sold shortly after they are harvested most likely due to likelihood of rapid post-harvest spoilage. Therefore, due to a lack of market or transportation, participants sold their crops to agricultural middlemen at a fraction of the price. Later in the season, when prices rose as these staple crops became more in demand, the participants found themselves spending more than what they sold the same crops for several months prior.

The author suspects that this "Catch-22" might be circumvented by supporting low-technology storage materials and related education. Currently the Wakiso women were using traditional methods or storage such as sacks to preserve grains and legumes. However, according to an action research trial in Uganda and Burkina Faso by the UN World Food Programme, implementing better storage practices can lead to large gains in income and food (Costa 2014). For example, the implementation of new technologies such as metallic and plastic silos, super grain bag, zero fly bag and grain safes allowed farmers to retain over 98% of their crops over 90 day period (Costa 2014). In contrast,

59.48% of the maize crop was lost after 90 days of storage using traditional methods such as sacks (Costa 2014). Costa explained the impact of these technologies among the Ugandan farmers they trained:

A smallholder farmer harvesting maize in Uganda in December 2013, would normally attempt to sell the majority of his crop within a few weeks of harvest to minimise the expected losses. This farmer selling maize in the early weeks of January 2014 would have received somewhere in the range of UGX 480 and UGX 520 per kg. By utilising the new storage technology and taking his crop to market three months later (April 2014) he received somewhere in the range of UGX 760 and UGX 820. This represents a potential 64% gain in household income for this family. (Costa 2014, pg 15).

Furthermore, technical work could be undertaken to support additional food preservation methods and low-cost effective technologies. In addition to improving the quality and shelf life of grains, tubers and legumes, further interventions could be developed around food dehydration and preservation methods for less-consumed food categories (e.g., fruits, vegetables or animal products) to improve household micronutrient intake.

In addition to work undertaken by Bega Kwa Bega and other NGOs in the region, the author suggests policies that prioritize the promotion of post-harvest crop storage best practices. The National Agricultural Advisory Service Organization (NAADS) was created in 2001 to address farmer knowledge gaps through agricultural extension projects (NAADS 2015). Their key objectives are focused on building capacity through training and facilitating collaboration, developing new funding streams and markets for farmers, and educating farmers on how to increase the agricultural productivity and yields (NAADS 2015). The organization already integrates gender-sensitive programming into their strategy; however, technologies or best practices regarding crop storage appear to be

largely ignored (NAADS 2015). Therefore, the author recommends that investments in storage education be included as a key strategic priority for NAADS. Given their far reach and already existing relationships with poor, rural farmers, the opportunities to reduce food wastage are potentially tremendous and long-lasting.

Conclusions

The author acquired the distinct impression that gender roles were rapidly changing for the women in Katiti and Sentema villages. This is perhaps best evidenced by the title of this thesis (“we now make our own money and decisions”) which was a quotation taken from the discussion groups transcripts. The author was struck again and again by how fiercely independent, hardworking and resourceful the participants were. The qualitative data paints a picture of women who are economically empowered and in control of their own decision-making. Furthermore, the participants were highly knowledgeable about nutrition and skeptical of old taboos prohibiting consumption of certain foods based on gender.

On the other hand, the qualitative data also presents women who were struggling with an overburden of household responsibilities due to absent, untrustworthy or unsupportive spouses. The participants took on the vast bulk of food security work in addition to childrearing, caretaking, operating a small side business and performing other duties required to run a household. Naturally, this labor burden made it extremely difficult to find time and resources to improve their situations. In addition to their reduced access to credit and land, the women’s ability to make economic headway was

further curtailed by a lack of long-term storage and no markets to sell goods directly to consumers, rendering middlemen a necessary evil.

Due to limitations in recruitment and unanswered questions, additional research will be required to confirm the results of this study. Based upon the participants' stated concerns, the author has recommended several potential investments that have a likelihood of a social return based upon the results of projects in similar populations. These include: helping facilitate a market or helping women unionize for negotiating power to improve the proceeds from agricultural output, piloting a radio-based behavior change communications campaign aimed at changing male attitudes around household labor and food distribution, and lastly facilitating a community "idea exchange" discussion series to encourage knowledge-sharing of best practices in livelihood and health behaviors.

However, perhaps the most cost-effective and compelling of these possible technical projects regards training and investments in improved low cost food storage technologies (Costa 2014). The author has also argued that these efforts could be supplemented by the inclusion of strategic objective of helping poor farmers of all genders avoid post-harvest food waste by training and investments from the National Agricultural Advisory Services Organization's agricultural extension services.

Every day the Wakiso women contend with deeply ingrained gender mores and disparities, struggles that they no doubt share with many other women living in rural regions of Sub-Saharan Africa. However, the Sentema and Katiti women have already made tremendous strides to combat gender inequalities and bolster food security and

dietary diversity within their households. Given their resourcefulness and know-how, coupled with continued technical investments, the author remains highly optimistic about the Wakiso women's future prospects.

APPENDICES

Appendix A: Interview Questionnaire

Code Number Assigned by researcher: <i>Kodi Namba ewerezedwa:</i>	
Consent form signed: <i>Fomu ekiriza etewedwako omukono?</i>	Yes/No
Village: <i>Ekyalo</i>	Katiti/Sentema
Tribe: <i>Ggwanga</i>	
Religion: <i>Dine</i>	
Age: <i>Obukulu</i>	
Married/Single: <i>Mufumbo/ Namunigina</i>	
Number of living boy children (and ages): <i>Abaana abobulenzi (Emyaka gyabwe)</i>	
Number of living girl children (and ages): <i>Abaana abobuwala (Emyaka gyabwe)</i>	
Education level/highest class <i>Wakoma wa mu kusoma?</i>	
Occupation <i>Omulimo Gwokola</i>	

<p>Do you earn an income (or make some money)? <i>Olina enyingiza? (Oba wokolera essente)</i></p>	
<p>Who is head of your household? (Male or female and relationship) <i>Ani omutwe gw'amaka gano? v(Mwaami oba Mukyala ate omwita otya)</i> If the respondent is the head the rest of the questions can be answered "N/A."</p>	
<p>What is the head of the households' highest education level? <i>Omutwe gwamaka gano yasoma okutuuka ku kitebe ki?</i></p>	
<p>What is the head of the households 'occupation? <i>Omutwe gwamaka gano akola ki?</i></p>	
<p>Does the head of the household earn an income (or make some money)? <i>Omutwe gwa amaka gano alina enyingiza (oba wafunira essente?)</i></p>	

<p>Other Quantitative questions <i>Ebibuzo ebilala</i></p>	<p>Yes= 1<i>Yee = 1</i> No = 0<i>Nedda = 0</i></p>
<p>Do you think it is healthy to eat a variety of different foods? <i>Olowoza kyamugaso ku bulamu bwaffe okulya emere eyenjawulo ezimba omubiri?</i></p>	

Do you think you eat enough nutritious foods? <i>Olowoza emeere joolya elimu ekiliisa ekimala?</i>	
Do your children eat breakfast? <i>Abaana bo baalya ekyenkya?</i>	
Do your children eat lunch at school? <i>Abaana bo baalya ekemisana ku somero?</i>	
Are your children drinking water in school? <i>Abaana bo banywa amaazi agokunywa kusomero?</i>	
Is there safe drinking water at school? <i>Waliyo amazi amafumbe amalungi ago kunywa ku somero?</i>	

Appendix B: Household Food Insecurity Access Scale (HFIAS)

Question <i>Ekibuuzo</i>	Frequency <i>Entakera</i>		
In the past four weeks did you.... <i>Mu sabiti enya eziwedde wali...</i>	Rarely (1) <i>Si nnyo</i>	Sometimes (2) <i>Ebiseera ebimu</i>	Often (3) <i>Tuteera</i>
1. Did you worry or have anxiety that your household would not have enough food? <i>Wali oyeralikiddemu nti amaka go tegajja okuberea n'emere emala?</i>			
2. Were you or any household member not able to eat the kinds of foods you preferred because of a lack of resources? <i>Gw'oba abomukaka go bali balemeledwa kulya emerere gyemwandiyagadde olwo 'kubulwa essente ezimala?</i>			
3. Did you or any household member have to eat a limited variety of foods (less kinds of food on the plate) due to a lack of resources? <i>Gw'oba abomumaka go mwali mulemeledwa okulya emere eyenjawulo (Ku sowani) lwa ebbula n'essente ezimala?</i>			
4. Did you or any household member have to eat some foods that you really did not want to eat because of a lack of resources to obtain other types of food? <i>Mwali mulideko emere gyemwali temmwagalila ddala lwakuba temulina essente ezigula emerere eyekika ekilala?</i>			
5. Did you or any household member have to eat a smaller meal than you felt you needed because there was not enough food? <i>Gw'oba abomumaka go mwali muliddeko akamere akatono okusinga bwemandiyagadde olwokubulwa essente.</i>			

6. Did you or any other household member have to eat fewer meals in a day? <i>Gw'oba nabomumaka go mwali muwosezzako ekijulo kyona?</i>			
7. Was there ever no food (of any kind) to eat in your household? <i>Waliwo ekiseera kona mwalimubulidwa ko ekika kyona ekyemere omu maka gamwe?</i>			
8. Did you or any household member go to sleep at night hungry? <i>Ggwe oba abomumaka go mwali musuzeeko enjala?</i>			
9. Did you or any household member go a whole day and night without having eaten anything? <i>Ggwe oba abomumaka go mwali musibyeko era ate nemusulako enjala.</i>			
Score (0-27)			

Appendix C: 24 Hour Dietary Recall

Now I would like to ask you about the types of drinks or foods that you ate yesterday during the day and at night. Please include snacks and all the ingredients used to cook the dish, including oils or sugars.

Nandiyagadde okubuuza byowalidde jjo ekiro nemisana. Nsaba ogateko obumpwakiwaki awamu n'ebirungo byokozeseza okufumba ngogatiddemu obuto oba sukari.

Breakfast <i>Ekyenkya</i>	Snack <i>Obumpwaki pwati</i>	Lunch <i>Ekyemisa na</i>	Snack <i>Obumpwakiwati</i>	Dinner <i>Ekyeggulo</i>	Any foods consumed inside or outside of the home? <i>Olina emere endala gyowalidde wabweru oba munda mu maka go?</i>

Appendix D: Household Dietary Diversity Score (HDDS) for Measurement of Household Food Access

(Expanded and Adapted for Ugandan audience.)

Now I would like to ask you about the types of foods that you ate yesterday during the day and at night.	Yes =1 No = 0
A. Any ugali, bread, chapati, noodles, biscuits, or any other foods made from millet, sorghum, maize, rice, wheat, or matoke?	
B. Any potatoes, yams, manioc, cassava, mogo, or any other foods made from roots or tubers?	
C. Any pumpkin, carrot, squash, pepper, or sweet potato that are orange inside? (Vitamin A)	
D. Any dark green leafy vegetables, including wild forms such as amaranth, cassava leaves, kale, spinach, nakati, or borr?	
E. Any other vegetables (e.g. tomato, onion, eggplant, mushrooms)?	
F. Any ripe mango, jack-fruit, citrus fruits, watermelon, papaya, pineapple, juice or other fruits? (Note: banana not included)	
G. Any beef, pork, lamb, goat, rabbit wild game, chicken, duck, or other birds, liver, kidney, heart, or other organ meats? Any insects (termites, lake flies, ants, grasshoppers, etc.)?	
H. Any eggs?	
I. Any fresh or dried fish or shellfish?	
J. Any foods made from beans, peas, lentils, or groundnuts?	
K. Any cheese, yogurt, milk or other milk products?	
L. Any foods made with oil, fat, ghee or butter?	
M. Any sweets like sugar, honey, cakes, sweetened soda or sweetened juice drinks, sugary foods such as chocolates, candies, cookies and cakes?	

N. Any other foods, such as condiments, coffee, tea, alcohol?	
HHDS Total (Out of 14)	
O. Did you eat anything (meal or snack) outside of the home?	

Appendix E: Discussion Group Questions Script

Introductions

Ennyanjula

Talk about the objections for the study

Yogera ebyokulugumya ebikwatagana na omusomo gunno

Explain means to record the session (audio recording)

Nnyonyola kiki ekitegeza okukwata amalobozi

Set up ground rules: *Okubaga amateeka*

1. Confidentiality *Okukuma ekyama*
2. One person talks at the time *Omu omu yayogera*
3. Respect each other opinions *Ssa ekitibwa endowoza eyomulala*

Access/Procuring foods *Enfuuna oba okugula okw'emere*

- Tell me about how your household grows food. (Who in the family grows which crops?)
- *Nsaba ombulire engeri amaka gye galimamu emere (Ani ow'ommaka go alima emere elya kika ki?)*
- Tell me more about how your household purchases food. (Who buys it? Where do they buy it? Who buys which foods?)
- *Nsaba ombulire ebilala ebikwata kuo kugula okw'emere mumakago (Ani agula emere eno? Agigula wa? Ani agula mere ki?)*
- Generally-speaking, what foods can be grown in your household and what foods need to be purchased outside the home?
- *Okutwalizza awamu, emere ya kika ki esobola okulimwa mumaka go ate era emere ki gyemugula?*

Livestock *Ebisolo*

- Does anyone in your household own livestock? (If so, what types of animals does your household own?)
- *Waliwo muntu yena mumaka go alunda ebisolo? (Oba bwekiri, bisoloki bwemulunda?)*
- Tell me about how the household uses livestock. (Are the animals used for dairy, eaten by your family, or sold on the market?)
- *Nsaba ombulire, ebisolo bino mubikozesa mutya? (Mufunamu amata, mulya oba mutunda mu katale?)*

Income Generation *Ebyenyigiza*

- How is income generated in your household?
- *Enyigiza yamwe mujisobola mutya?*
- How are purchasing and income distribution decisions made in your household?
- *Musalawo mutya ku kiki ekyokugula oba ani afuna ssente meka mumaka gano?*

- Who does chores around the house or kitchen garden? What chores do men in your household do? *Ani avunyanyizibwa akola emilimu munyumba oba mu akalimiro akali okumpi n'efumbiro? Abaami bo bakola emilimo ki?*

Food Distribution *Okugaba Okwa Mere*

- Tell me more about a typical meal in your household. (Do you eat together or at different times? Where do household members eat? Is someone served first in your household?)
- *Nsaba ombulire, bulijjo mutekwa kulya emerere eyakika ki mu maka gano? (Mulyau ekiseera kyekimu oba mukisera ekyanjjawulo? Obomukaka go emere bajilira wa? Waliwo gwemusoka okugabula emere?)*
- How is food distributed in your household? (Does anyone eat more food?)
- *Emere mujigabula mutya? (Waliwo asinga okulya nnyo okusinga abalala?*
- How do you make decisions about what to feed boy children verses girl children? (Do they eat different foods? If different foods, why?)
- *Musalawo mutya kiki okulisa abana abalenzi oba abana abawala? (Balya emere ya njawulo? Oba bwekiri emere ki ate lwaki?*
- How do the men in your household eat? What do they like to eat?
- *Abaami mumaka gano balya bata? Batera okwagala emere ki?*

Food Consumption Patterns

- How do you prepare your foods?
- *Emere omujitekateka otya?*
- In your opinion, what is the best way to flavor a dish? (What spices do you use?)
- *Mukulowaza kwo, osobola otya okwongera okuwomesa emere? (Ebirungo ki byokozesa?)*

Storage and Preservation *Entereka ne'emkuuma*

- After you harvest your crops, how do you store them to avoid spoilage?
- *Wemumala kukungula ebilime byamwe, mubitereka mutya okubikuuma obutayononoka?*
- Tell me about if and how alcohol is made in your household. (What kinds? Who makes it?)
- *Nsaba ombulire oba mumaka ko okola omwenge (Ebika ki? Ani agukola?)*

Nutrition Knowledge *Okumanya okukwatana n'eyendisa*

- What types of food do you think are most nutritious for people to eat?
- *Olowoza ebikaki ebyemere ebisinga okubaamu ekiliisa eri abantu?*
- Are there any foods that women or female children should *not* eat?
- *Waliwo emere abakyala oba abawala kyebatasanide okulya?*
- In your opinion, should women eat different foods than men if they want to be healthy? (If so, what foods?)

- *Mundowoza yo, abakyala bandilidde emere eyanjawulo okuva kuya abaami basobole okuba nobulamu obuluungi?*
- In your opinion, how should women eat during pregnancy if they want to be healthy?
- *Mundowoza yo. Abakyala basanide okulya emeere eyabiika ki nga bali mbutu singa baagala okubeera nobulamu bulungi?*
- In your opinion, what foods are best to eat when you are breastfeeding?
- *Mukulowoza kwo, emere ki esanidde okuliibwa n'omukyala ayonsa afune amabere agamala?*

Cooking *Okufumba*

- Do you pride yourself on being a good cook? If so, what is your favorite dish to prepare?
- *Mukolowo kwo, weraba ngo 'mufumbi omuluungi? Woba bwekiri, emerere ki gyosinga okwagala okufuumba?*
- What are some of your favorite foods to eat?
- *Emerere ki gyosinga okuwomwerwa?*

Food and Body Image *Emere ne Endabika ey'omibiri*

- Some people prefer women with lean bodies and others prefer plump. In your opinion, what type of body do you think is the most beautiful for a woman?
- *Abantu abamu bagala abakyala abatono ate abalala bagala abanene. Mukulowoza kwo, omubiri gwakika ki ogusinga okulabisa obulungi mukyala?*
- What type of body do men think is most beautiful for a woman?
- *Abaami bo balowoza batya ku mubiri ogusinga okulabisa okukyala obuluungi?*
- How do your ideas of body shape and beauty influence your food choices?
- *Endowoza yo ku endabika no'bulungi, elina kyekola ku mere ki jjosalawo okulya?*

Bega Kwa Bega Questions

- How far is your children's' school from your house?
- *Buwamvu ki obuliwo okuva ku somero elyaabaana bo na'amaka go?*
- How could Bega Kwa Bega or other NGOs best help your household procure healthy foods?
- *Bega kwa Bega oba ebitongole ebilala bisobola bitya okuyamba amaka go okugula emere enuungi?*

Appendix F: Informed Consent Form

Fomu Elaga Okutegeza

RESEARCH PROCEDURES

EMITENDERA GYOKUNOYEREZAMU

The researchers are trying learn more about how women in southern Uganda grow, buy, prepare, preserve, store, distribute and consume food in their households. If you agree to participate, you will be asked to answer questions regarding food, farming, health, your families and other household activities.

Abanonyereza bagezako okuyiga engiri abakyala abomu maserengeta ga Uganda balima, bagula, bategeka, bakuuma, batereka, bagaba era balya emere mu maka gabwe. Oba okiriza okwenyigiramu, ojakubuzibwa ebibuuzo ebikwatagana ne'ndya, okulima, obulamu, amaka go nebilila byokola awaka.

You will be asked to take part in a 30 minute one-on-one interview, followed by a 60 minute discussion group. Together, the research activities will take approximately 1 ½ hours of your time.

Ojakubuzibwa ebibuuzo ebimala dakika 30, oluvanyuma tujakuba na akakiko akakuganiza ebilowozo akamala dakika 60. Okutwaliza awamu tujakumala esawazo 1 ½.

RISKS

EMITAWANA

There are no foreseeable risks for participating in this research.

Tewali kaabi kona kasobola kuvaamu lw'okwenyigira mukunonyereza kuno

BENEFITS

BYOGANYULWA

The benefits to you include refreshments, various fruit and vegetable seeds.

Ojakufuna ekiweweza omumiro, ne'sigo ezenjawulo ezebibala awamu ne'sigo ezenva endiirwa

CONFIDENTIALITY

EBYAMA

The data in this study will be confidential and anonymous. Names and other identifiers will not be placed on questionnaires, transcripts or other research data to ensure anonymity and confidentiality. Participants' names will only be recorded on the consent form which will be kept safe in a locked box. On the quantitative interview forms, participants will receive a number based on when they were interviewed (1, 2, 3, etc.) to ensure anonymity of responses. Qualitative focus group transcripts will not be attributed to specific individuals and will therefore not be coded.

Byona ebizulidwa bijakusigala ng'abyakyama. Amanyanya tegaja kulagibwa ku ebibuzo oba ebintu byona ebinakozesebwa. Amanyanya aganawandikibwa ku fomu elaga okutegeza gajakukumibwa mu akasanduku akasiibe. Kubibuzo ebisobola okubwalidwa, abazemu ebibuuzo bajakuweba namber (1,2,3 n'endala) okusobozesa okukuuma ekyama. Ebyogedwa mukakiiko tebijagekulaga ani ayogedde ki nolwekyo tebija okubera ne kodi yona.

Although discussion group participants will be asked to keep the contents of the discussion confidential, due to the nature of a focus group, the researcher cannot control what participants may say outside of the research setting.

Wadde ababadde mukakiiko bajakusabibwa obuta yogera ebyogedwa, okuzinzira obutonde obwa'bantu, anonyereza tasobola okukakasa nti ababadewo teboogede ebitesedwa awalala.

PARTICIPATION

OKWENYIGIRIZA

Your participation is completely voluntary, and you may withdraw from the study at any time and for any reason. If you decide not to participate or if you withdraw from the study, there is no penalty or loss of benefits to which you are otherwise entitled. There are no costs to you or any other party.

Okwenyigiramu kwo, kwa bwanakyewa, era osobola okuva mumusomo wona bwoba oyagalidde era olw'ensonga yona. Woba osazewo obutenyigiramu mulukiiko oba mumusomo guno, tewali kyona kyonofiirwa kyewandibadde ofuuna. Era teri yena anasasuzwa essente zonna.

AUDIO TAPING

OKUKWATA AMALOBOOZI

This study will contain audio taping which will occur during the discussion group sessions. Translator Maureen Ndahura will translate the audio recording into English transcript.

Omusomo guno guga kukwatibwa amalobozi nga okukubaganya ebirowozo bwekugenda omumaaso. Amalobozi agakwatidwa kaja kuvunulwa muluzungu na Maureen Ndahura.

These audio tapes will be uploaded electronically and kept secure with a password protected file so that they can only be accessed by Amialya Elder and Maureen Ndahura. The original file will be held in a lock box in a secure location. Both the electronic and physical records will be destroyed five years after the audio transcript has been translated and transcribed.

Amalobozi agakwatidwa kajakukuumibwa buluungi era abasobola okufuna bajja kuba Amialya Elder awamu ne Maureen Ndahura. Ebiwandikidwa ebituufu bijakuterekebwa mu kasanduuku akasiibe mu ekifo ekikumiddawa obulungi. Byona ebiterokedwa bijakusanyizibwako oluvanyuma lwa myaka etano.

_____ I agree to audio taping.
_____ *Nzikiriza edoobozi lyange okukwatibwa kukataambi*
_____ I do not agree to audio taping.
_____ *Sikiriza edoobozi lyange okukwatibwa kukataambi*

CONTACT

ABAKOLA OKUNONYEREZA KUNO

This research is being conducted Amialya Elder of the Nutrition and Food Studies Department at George Mason University. She may be reached at 000-1-323-203-7774 or aelder8@masonlive.gmu.edu for questions or to report a research-related problem. *Okunonyereza kuno kuloledwa na Amaila Elder owa Nutrition and Food Studies Department e George Mason University. Asobola okutukirirwa ku 000-323-203-7774 oba aelder8@masonlive.gmu.edu*

Faculty advisor Dr. Constance Gewa is also available via email at cgewa@gmu.edu or via phone at 000-1-703-993-2173.

Akulira omusomo Dr Constance Gewa osobola kumufuna ngakozesa omutimbagano cgewa@gmu.edu oba ku simu 000-1-703-993-2173

You may contact the George Mason University Office of Research Integrity & Assurance at 000-1703-993-4121 if you have questions or comments regarding your rights as a participant in the research.

Osobola okwetukira George Mason University Ofisi eya Research Intergrity & Assurance ku 000-1703-993-4121 woba olina ebibuuzo oba ebokwongerako ebikwatagana na okobeera mu kunonyereza kuno.

This research has been reviewed according to George Mason University procedures governing your participation in this research.

Okunonyereza kuno kwekenenyezeddwa ku mateeka agafuuga etendekero ekulu elya George Mason.

CONSENT

OKUKIRIZA

I have read this form, all of my questions have been answered by the research staff, and I agree to participate in this study.

*Nsomye fomu eno, ebibuuzo byange byona bidizidwamu abakoze okunonyereza, era
nzikiriza okwenyigiriza mu musomo guno.*

Name (or Thumbprint)
Erinya(oba ekyenkuumu)

Date of Signature
Olunaku

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